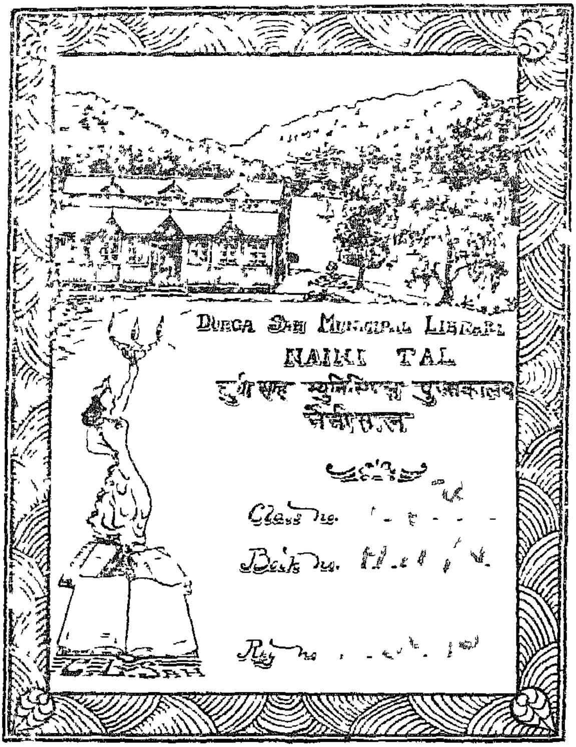

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NEW HORIZONS IN BUSINESS

Edited by

Julius Hirsch

Seven leaders in American business, finance, and economic research have scanned the horizons and drawn a picture of America's economic future in the next two decades. Though they examine different aspects and view them from different vantagepoints, they come together on their vision of a bright and expanding future.

The lectures presented here in book form were delivered under the auspices of the Business Administration Center of The New School for Social Research in the spring of 1955. In their discussions, the authors deal with such new developments in American life as automation, the rapid growth of population, the expansion of gross national output, the new design of living resulting from the short work week and suburbanization, changes in the stock market, regional shopping centers, innovations in the operating policies of business firms, the extension of leisure, the "do-it-yourself" market. These and related subjects are considered in relation to the processes that shape the American economy as a whole.

Through its outlook, its method of treatment, and its authors' rare combination of practical and theoretical experience, this book offers new insights to businessmen, investors, teachers, and students of economics.

About the Authors

Julius Hirsch is an economic consultant to banking and industrial concerns, and has been a professor on the graduate faculty of The New School for Social Research since 1941. **Leo Barnes** is Chief Economist and Financial Editor of Prentice-Hall, Inc. **Martin Gainsbrugh** is Chief Economist, National Industrial Conference Board, as well as Director of its Division of Business Economics. **Benjamin Graham** is Chairman of the Board of Graham, Newman, Inc. **Cuthbert C. Hurd** is Director of Electronic Data Processing Machines, IBM. **Lewis L. Lorwin** is Research Consultant at The New School for Social Research. **Paul M. Mazur** is a partner in Lehman Brothers. **George L. Ridgeway** is Director of Economic Research, IBM.

NEW HORIZONS IN BUSINESS

Studies of the Research Division, The New School for Social Research

New Horizons in Business

A LECTURE SERIES ORGANIZED BY
Julius Hirsch
for the
Business Administration Center
The New School for Social Research

With an introduction by
LEWIS L. LORWIN

HARPER & BROTHERS
NEW YORK

NEW HORIZONS IN BUSINESS

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PREFACE

The lectures presented here in book form were delivered at The New School for Social Research between March 3 and May 5, 1955. They were given as one of the regular courses in the Business Administration Center of The New School for Social Research, under the title, "Round Table for Business Executives." The lectures were arranged by Dr. Julius Hirsch, director of the Business Administration Center, with the cooperation of the Research Division of the New School and of its Business Advisory Group.

The lectures aroused much interest as was evidenced by their large attendance and by comments in the New York daily and weekly press. Among those in attendance were representatives of many industrial, mercantile, and financial firms as well as of academic institutions and research agencies.

The lectures deal with long-range trends and problems of the American economy, which are of vital importance for the welfare of the American people. The discussion of these trends and problems by the several authors is authoritative, informative, and suggestive. The lectures should be of value and interest to businessmen, investors, trade union officials, teachers and students of economics, researchers, and to the general reader concerned with the economic future of America.

This book is one in the series of studies of the Research Division of the New School. In making these lectures available in book form, the Research Division believes that it is making a useful addition to the literature on current economic problems. This is in accordance with its general purpose to bring to the attention of the general public the results of the research and scientific work of members of the faculties of the New School, particularly of its Graduate Faculty of Political and Social Science, and of cooperating experts.

It is a pleasure on behalf of Dr. Hans Simons, President of the New School, and Dr. Hans Staudinger, Dean of its Graduate Faculty, to express warm thanks to the contributors of this volume for their valuable cooperation. The Research Division of the New School is under special obligation to Mr. Albert E. Meyer, Vice-President of Park-Bridge Corporation and Associate Director of the Business Administration Center, for his interest and help in making this lecture series possible, and to Mr. Daniel N. Weihermann, assistant to the Director of the Business Administration Center, who gave generously of his time and effort to edit the recordings of the lectures and of the discussions and to help prepare the manuscripts for publication.

It is with deep appreciation that we acknowledge the interest and financial support of Mr. and Mrs. Benjamin Greenspan who, in memory of their daughter, Helen, facilitated the publication of this book.

LEWIS L. LORWIN
Research Consultant,
The New School for Social Research

NEW HORIZONS IN BUSINESS

I

INTRODUCTION AND SUMMARY*

In this informative and stimulating volume, seven leading men in business and finance and in economic research scan the horizons of American business for signs of what the economic future may hold for the United States. Though they look from different vantage points in the economic system and through different glasses, they converge on the same vision of expanding bright vistas for the next two decades—which is as far as they presume to be able to see.

In broad outline, they see the horizons of business widening, owing to the growth of productivity and to the rise in the levels of living of the American people. As in climbing a mountain the further one advances toward the summit the wider does the horizon spread out, so in economic life the higher the achievements the greater the outlook for further advance, provided we are on guard in business as in mountain climbing that the dizzying heights and over-stimulation of the upward movement do not cause a loss of balance and a fall backwards into the depths below.

---

* By LEWIS L. LORWIN, author, *The International Labor Movement* and other books.

How far the new horizons in business may arch out between now and 1975 is the theme of the chapter on "Our Economic Future." Comparing eight different long-term forecasts made between 1952 and 1954 by government, business, and other economists, Dr. Hirsch finds them in essential agreement on the industrial growth and economic progress ahead. In the next two decades, he forecasts, the output of goods and services in the United States will be nearly double what it is today. The living standards of the people, measured in per capita income and consumption, will be about two-thirds again as high as at present. Every person—man, woman, and child—will have at least $1731 and possibly as much as $2828 a year. For an average family of four, this would mean an annual income of somewhere between $6924 and $11,312 (in 1951 dollars). Some industries may lag owing to changing habits and ways of living, but the over-all picture is one of abundance and comfort. Furthermore, the larger output and consumption will be achieved with less effort, in a work-week of about thirty-five hours.

What the higher standards of living may mean in concrete goods and services is spelled out by Dr. Hirsch in some detail. The American people will have adequate food and clothing, more and better housing, and more and better furniture and electrical appliances in their homes; the great majority will own their homes, and more people will own cars and even helicopters; there will be more places for convenient shopping; there will be a spectacular increase in the use of synthetic fibers; last but not least, recreational and educational facilities will be greatly expanded so that the greater leisure may bring more personal satisfaction and enjoyment.

What is the basis for these great expectations? That question is considered in all, but particularly in the first three, chapters.

The authors of these chapters agree that the great promise of the American economic future has its source in three basic processes of the present, namely, population growth, the rise in productivity, and the development of science in its technical application to industry. Both Mr. Mazur and Dr. Hirsch stress the importance of population growth as a factor in stimulating demand and thus production. Neither of them shows any Malthusian fears, at least insofar as the United States is concerned. Mr. Mazur welcomes the growing annual "baby crop" as a source both of the future demand for more goods and of the labor supply needed to produce them. Dr. Hirsch looks ahead to a population of about 200 million and to a civilian employment of over 85 million persons in 1975; he is convinced that at least for a generation or two we need have no worries about this increase in population. Our productive capacity, he states, makes "every new citizen a welcome consumer," and presumably also a needed useful producer.

But increasing numbers of people could not be assured of higher living standards were it not for the fact that American industry, owing to the growth of productivity, increases its production at a rate greater than the rate of population growth. Mr. Mazur points out that increased productivity—the ability of each working person to produce more within an hour of his or her employment—enables American business to pay higher wages, improve quality, and shorten the work week, without increasing costs or prices. Dr. Hirsch is impatient with those who fail to recognize fully the importance of the growth of productivity in the United States—"America's pride"—and sees our industrial productivity developing at an annual rate of at least 2.5 to 3 per cent cumulatively. At this rate, the total output of goods and services by the increased labor force which he projects for the next twenty years is fully warranted.

The authors referred to stress the mechanical and technical factors in productivity. Mr. Mazur connects the growth of productivity and markets with "the extraordinary, miraculous system called mass production in the United States." Dr. Hirsch, at least by implication, relates it to the greater use of energy by American industry. But it is Dr. Hurd who develops the theme more fully in the chapter on "New Horizons in Technology." What he sees is a new stage in the Industrial Revolution—a stage in which the mathematician, the physicist, the chemist, and the engineer provide the businessman with electronic computing devices for the automatic control of integrated industrial processes and even of entire production-marketing operations. That is what he means by automation which, as he makes clear, goes far beyond the mere use of automatic machinery.

Automation is a new development toward an industrial system in which not only human physical labor is saved but in which even human direction is reduced to initial planning and to fault correcting. The potentialities of automation for increasing productivity are immense, as experience has already shown. Those who expect automation to become a dominant feature of American industry in the next decade, would seem to have good reason for their higher than 3 per cent estimates of the annual rate of productivity growth.

In view of its technological basis, the growth of productivity is closely correlated with investment in plant and equipment. How this correlation has varied in years past is shown in Chart III on page 37. The investment policies of the dynamic America projected in this volume are discussed by Mr. Graham in the chapter on "New Horizons in Investment." Mr. Graham's starting point is that the corporate sector will grow at a greater rate than the other parts of the economy: he takes as his guidepost the projections of the Congressional Committee on the Economic Report, according to which corporate profits after taxes between 1954 and 1965 will increase by 64 per cent and dividends by 90 per cent, as against an increase in Gross National Product during the same period of only 47 per cent. Such heights in corporate profits and in dividends obviously imply large savings and their effective use in productive investments.

Mr. Graham is concerned with four aspects of the problem, namely: what should guide and is likely to guide the individual investor in his choice of securities; what the behavior of the stock market is likely to be; what the impact of tax policy may be; and what changes are to be expected in stockholder-management relations. As Mr. Graham is interested as much in what should be as in what is likely to be, his discussion offers many suggestive hints to the individual and corporate investor.

Of the general statements which Mr. Graham makes, the most challenging are that the future investment policy called for by the optimistic projections is much like the policy that has been formulated by most authorities in recent years, and that the stock market as a whole—Wall Street—will behave in the future much as it has in the past, in line with the dictum that "The more it changes, the more it is the same thing." According to Mr. Graham, the general rate of growth of American business profits will undoubtedly control the future rate of growth of representative common stocks, their earnings, dividends, and prices. But prices of individual stocks and the stock market as a whole are, in his opinion, swayed also by autonomous and changing subjective and speculative moods. Stock market fluctuations and cycles will therefore continue in the future as in the past, irrespective of over-all economic stability. The inference is that the stock market is likely to reflect or to influence only over the longer run and rather sporadically the forces which determine the long-term growth of the economy.

Mr. Graham does foresee changes in corporate financing as a result of tax policies, and in management-stockholder relations as a result of stockholders' demands for better financial results from their investments. The new forms of corporate financing which he projects seem to point to greater centralization of financial structures and controls; the establishment of criteria by which stockholders may judge the performance of management points toward more precision and to decentralization in the determination of management policies.

The long-term economic projections discussed in this volume rest on several general assumptions or postulates, two of which are of particular importance. One is that there will be no atomic war during the next twenty years, and that the United States will be able to grow in peace. The other is that the American economy will be supported by government commitments to maintain full employment, in the spirit of the Employment Act of 1946.

Granting these assumptions, the several authors still see a number of serious problems ahead arising out of the very growth of productivity which they predicate. As Dr. Hirsch puts it, productivity growth is "not without danger," since it tends at times to proceed more quickly than the demand for goods and services. This "excess productivity," as Mr. Graham calls it, contains a threat of unemployment. The danger envisaged by them is that of mass unemployment resulting from a lack of balance between production and consumption. None of the contributors to this volume believes that the business cycle has become a thing of the past, or that we know fully how to control it. They do believe, however, that the government has means at its command to reduce the amplitude and duration of business fluctuations to a considerable extent.

Theoretically, of course, the long-term projections are not affected by the likelihood of business recessions. It is assumed that periods of recession will be compensated for by subsequent periods of exceptional expansion so that, on the average, economic growth will be at a rate about equal to that which would result from constant, approximately full, employment. In practice, however, the social consequences of mass unemployment may upset theoretical calculations of time and quantity. The authors quoted above offer remedies to meet such situations. Dr. Hirsch would encourage productivity growth but would reduce hours of work, increase consumption, and, if necessary, have the government undertake public works. Mr. Mazur would stimulate mass consumption through "education," that is, teaching consumers how to want more and better things and how to practice more rapid obsolescence by discarding old for new goods at shorter intervals. The mere existence of purchasing power is not enough, he feels. We need much fundamental research to convert latent demand into effective demand. We should place less emphasis, he says, on increasing production and more emphasis on stimulating consumption.

Dr. Barnes and Mr. Ridgeway are concerned with another aspect of a too rapid growth of productivity, especially of a rapid spread of automation, namely, its tendency to displace workers and create technological unemployment. Dr. Hirsch points out that this process may be aggravated by shifts in the geographic distribution of population and industries. To obviate such tendencies, they propose the creation of attitudes and conditions that will give businessmen, workers and other social groups time to make necessary adjustments, and which will encourage business to plan new investments, products, and services.

Related to the problem of economic recessions is that of inflation. Two questions are involved here, as discussed by Dr. Hirsch. One is whether the long-term goals projected for the American economy can be realized without going through periods of inflation and deflation. This question is another way of stating the problem of the business cycle considered above.

The other question is whether, assuming we can avoid alternating periods of inflation and deflation, we can also succeed in maintaining approximately constant full employment, without at least "periods of controlled progressive inflation." Such inflation, expressing itself in a slowly but steadily rising price level, would mean, in Dr. Hirsch's words, "cheating the people who rely on their savings." Such inflation, he believes, will become less and less likely as a result of political and social developments.

The process of economic growth, based on technological progress and accompanied by social improvement in standards of living, gives rise to a host of other problems, besides those considered above. What these problems are and what further research may be needed for dealing with them is discussed in the comprehensive and thoughtful chapter on "New Horizons in Business Research." In this chapter, Mr. Gainsbrugh outlines the potentialities of business research in five areas of the social-economic system: in the investment sector, the consumption sector, the government sector, in the field of internal business controls, and in the analysis and forecasting of the trend of business conditions. The research vistas he opens up in these five sectors are wide indeed, calling for the gathering of new data, for the analysis of specific problems, and for broad "imaginative attacks" on "the great problems of economic and business theory." Mr. Gainsbrugh formulates in concrete terms a whole array of current and long-range problems, some of which are being studied now, but most of which call for a new large effort on the part of individuals, business concerns, universities, and research organizations, as well as of the government.

In his review of the need for and potentialities of business research, Mr. Gainsbrugh suggests a stimulating general idea, namely, that as the conception of a dynamic economic society catches hold within the business community, it generates new insights and tends to modify business practices and policies so as to connect them more closely with long-term economic and social trends. It is this dynamic way of looking at the economy that creates new and large problems for business, calling for wider and more integrated research. In the investment sector, for instance, the new dynamic outlook leads to recasting of depreciation and replacement policies and to a search for regularizing business investment; in the consumer sector, it stimulates interest in long-run changes in patterns of social living which affect consumption habits and the demand for goods; in the government sector, it makes business more concerned with the long-run effects of public on private spending. It is the interaction between long-run economic changes and current business problems that widens the horizons in business research.

This is an optimistic book. But optimism need not, and should not, encourage quiescence or complacency. True, the larger economic projections are expected to be realized; that presumes also that the numerous problems raised by a dynamic economy will be solved. But the widening of the horizons and the solution of problems will depend on more knowledge, inventive and imaginative thinking, and on rationally applied individual and social effort. The promise of the American economy is thus not only an opportunity but also a challenge.

Furthermore, the business system functions in an environment of general economic institutions and social values. What are the new horizons in these larger areas—in labor-management relations, in the distribution of ownership and income, in group relations, in social welfare and education, and so on? What is, in brief, the emerging new "design for living" which, as one of the contributors to this volume points out, must ultimately shape the progress of business?

Every generation asks these or similar questions and tries to answer them for itself. One way to seek an answer is to study basic economic and social changes that have taken place over a period of years for clues to future trends. A generation ago, such surveys were made by special commissions which had the support of President Hoover and whose work resulted in the important volumes *Recent Economic Changes in the United States*[1] and *Recent Social Trends in the United States*.[2] The present generation would be well served by similar surveys of the structural economic and social changes that have taken place since 1929. Such surveys would be of value also in giving the rest of the world a clearer view of the new horizons not only in business but in the economic and social life of America. As several of the contributors to this volume point out, that would help to strengthen America's ideological position in the world struggle for freedom.

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[1] Report of the Committee on Recent Economic Changes, of the President's Conference on Unemployment (New York: McGraw-Hill Book Co., 1929).

[2] Report of the President's Research Committee (New York: McGraw-Hill Book Co., 1933).

II

NEW HORIZONS IN DISTRIBUTION*

With Special Reference to Department Stores

In order to talk about the activity or functioning of a particular device, it is necessary to understand the framework within which it operates. It seems to me essential, therefore, that we sketch briefly the economic picture as it is in the United States today and as it may be in the future, so that we may know within what kind of an economy the instrument or function called "retailing" and the device called the "department store" may operate.

THE ECONOMIC ENVIRONMENT

In the recent past we have seen a phenomenon which has been labeled by various terms—either recession, or depression. Whatever you call it, there was a "retrogression" in the economy sufficient to change the political character of our Congress in 1954.

Now, this "recession" measured in quantitative terms was mild. In that part of the economy called production, it was probably 10 per cent; on the consumption side it was practically nothing. It probably had a lot of complicated causes, but chief among them, I think, was the reversal from the accumulation of inventories to the de-accumulation of inventories. That change, from accumulation to de-accumulation, I believe accounts for about 50 per cent of the amount of recession or depression which we have had in the United States. Most of our changes are fundamentally of this character: first business *overestimates,* and the pendulum swings too far in terms of production; then business gets concerned and de-accumulates and *underestimates,* and the pendulum swings the other way.

---

* By PAUL M. MAZUR, partner, Lehman Brothers; author, *The Standards We Raise.*

The second event which took place recently, coincident with the de-accumulation of inventories, was that the government elected to reduce its expenditures for defense by a substantial amount. Those two figures together—the de-accumulation of inventories and the change in governmental expenditures—represented almost the total amount of our recession in 1954.

There were two other unusual factors in that recession. One was that our price structure remained extraordinarily stable. Historically, that usually does not happen. The reason prices held up, I think, was that wages of labor continued to move up enough to offset the increase in productivity. The second thing that happened was that consumer expenditures continued stable. American men and women continued to spend at just about exactly the same rate as they had previously—no great stimulus up, and no trends down—which, by the way, can be interpreted as wholesome.

Now we are in a situation where we can spotlight two salient facts, and perhaps also a third. First, the *automobile industry* is moving at a rapid rate—rapid, that is, in terms of the historical precedent or pattern. The industry is assembling at the rate of between 7.5 and 8 million cars a year. Our *building starts* are also moving up rapidly. Those are two important factors in the American economy.

It may be that we will again do the same thing that we have done in the past; namely, that we will exceed our consumption levels with our production so that inventories will accumulate; and just as certainly as day follows night, this will again create a recessionary trend. It is essential that we *correlate* supply and demand, production and consumption, or else we will increase inventories, and the American economy is not accustomed to having an increase in inventories extend for a long period of time without arousing substantial concern, liquidation, and even dumping. Thus, unless growing production can be channeled into consumption, unless consumption can be made to grow at a rate equal to the tempo of output, we will have an increase in inventories, and a recurring arrestment of expansionary trends.

One thing that concerns people about the current rate of automobile production is related to this problem. Let us assume that businessmen are not going to make the mistake of confusing real gold with fool's gold in an economic sense. Often businessmen—and I include myself in that group—are just as enthusiastic about sales that come from the account of inventories as they are about sales that come from the account of consumption and distribution. But when production goes into inventory it is the equivalent of fool's gold and there is a day of reckoning that must come after it.

Let us assume that we eliminate this kind of mining and this kind of metallurgy. Let us assume that we have no accumulation of inventories. Then we have to ask ourselves the question, "What beyond that?" Let us assume that business succeeds in correlating its production with consumption because it must do so in the longer run. Production *must* be regulated by consumption rather than the reverse because consumption levels are determined by 160 million people combined into some 47 million families or households while production levels are determined by a much smaller number. Then what about the economy of the future as a framework into which to fit the function of distribution? To use a word from the title of this book, what about the "horizons" for that future economy?

THE NEED FOR EXPANSION

One thing we should know is that if it is going to be a *stable* economy, it is not going to be a benign or safe economy. If we could visualize the extraordinary situation of having a stable economy for the next ten years, we should be much concerned about that fact. The reasons are clear. In the first place, we have a production system which increases productivity at the rate of somewhere between 2.5 and 3 per cent a year, depending on who interprets it. That means that the same amount of goods would be made each year with 2.5 to 3 per cent fewer people. Then we have an increasing number of people joining the ranks of labor. They come from the shift of the farm population into urban population, and they also come from that active production system that we have had in the United States for a long time, and the tempo of which we are increasing, namely, the birth rate.

We add to the labor force, to the people who can and want to work, somewhere between 750,000 and 800,000 per year. Thus, not only are fewer people necessary for production as a result of productivity growth but we also have more people to employ. If we multiply the annual increment by a ten-year figure, we arrive at a rather large number. So it is necessary, it would appear, under our system of population growth and productivity, that we have a *growth in our markets.*

That fact points to both the advantages and disadvantages of the extraordinary system called mass production in the United States. I will not go through all the elements that I think are descriptive of mass production. It must be clear that its benefits lie in the fact that it allows us to pay relatively high wages to American labor and that it allows those wages to be paid without an equivalent increase in the cost of goods and services sold. As a result we can compete in world markets even though our wage levels may run three, four, five, and even ten times as high as those of our competitors. That is because our productivity under our mechanization is so extraordinary. Obviously, to continue to pay increasing wages and to continue to hold prices or costs, the same number of human beings must produce more within an hour of their employment. Therefore, mass production must by its nature be a creator of unemployment in a stable economy; or, to put it another way, the corollary of mass production is growth. It must be growth, in order to get the advantages of mass production—the benign advantages without that form of virulence called unemployment that can develop through adverse bacteria in the economy.

Into this picture there has now come another important element called *automation.* I think it is going to move rapidly. I think it is moving rapidly. Included in its scope is the whole development of the computer field in which International Business Machines Corporation is doing such an extraordinary job.

I believe that it will make its first inroads into the so-called *white-collar group through mechanization of their functions.*

As one walks into a modern plant today, particularly an automobile plant, and looks at the assembly line, which was the great American development in the 1920's, and then goes into a plant which has automation, he is struck with a difference almost as great as the difference between an oxcart and an American automobile. And the change has occurred within less than a generation.

Automation is going to have an effect on increasing the percentage of productivity. Whatever the figure was—whether it was 2.5 or 3 per cent—it seems destined in the next decade to be that figure *plus something.* That means we will still further increase the ability of people—the same number of people—to produce more goods; and therefore the ability of a smaller number of people to produce the same amount of goods. That, too, calls for growth.

So there are three important factors which, in the United States, insist that we grow in order to remain constant. Strangely, we grow at an increasingly rapid tempo. Someone made the statement not long ago that each nineteen months in today's civilization we develop as fast as we have from the dawn of history up to that date. Let us assume that this is an exaggeration. The fact is that we are traveling on the upward side—almost straight up. And just as we are not going back to a four-cylinder, sixty horsepower automobile, so we are not going to go back in our productive methods to more obsolete means. The demand for growth, therefore, is so essential, so important that to deny it in our thinking invites disaster. I wish I could put that conviction into a hypodermic and inject it where it would do the most good among our statesmen, whether they are Congressmen or economists or businessmen.

THE SOURCES OF GROWTH

From where is this growth going to come? What are the major elements of growth? Obviously, one is the fact that we have an increasing population. Not only are these people producers, they are also consumers and they consume goods in two ways, or as two types of consumers. First, they consume goods as *families*, and then they consume goods as *individuals*. The kinds of goods that each group consumes are different.

Family formation in the United States at the moment is in a lull. That is due to the fact that fewer people were born in the 1930's and therefore fewer people are reaching marriageable age in the 1950's. That is one of the results of the depression of 1929-32, the only one of its kind that we have had in the United States and in the world.

At the present time, in spite of the lower rate of family formation, we are enjoying an enormous birth rate. That high birth rate has been going on since the early 1940's, so that ahead of us is the probability of an increase in family formation beginning probably around the 1960's. Thus, as far as family formation is concerned, and in what these families require, it seems clear that we are going to have a certain growth factor ahead of us.

What do the *new families* require? They are the ones who use the automobiles, they are the ones who use refrigerators. They are the ones who use homes. They are the units that buy the goods that go into a home or a household, as a part of that household.

Our enormous baby crop, at the present time, despite the low rate of marriages, is an interesting phenomenon. Why is it that young couples are interested in having more children even though they have fewer servants? Servants in the United States are available only for about 2.5 per cent of the families. That is all we have. We are a servantless people, or a "domesticless" people.

The *baby crop* promises all sorts of things in the way of growth, starting with diapers, baby food and working up until the young of today become the progenitors of the family unit of 1975. So the population factor is important in terms of consumption and in terms of family formation as well.

But again, we must remind ourselves that just as these individuals are consumers, so they are also *producers.* If we are going to have an increase in *employment opportunities* we have to have an increase in consumption. That means not only an increase in the gross figure itself but an increase in consumption *per capita* or *per family.*

From what does that kind of increase come? It comes from a rise in the standard of living. We must create new requirements which will become necessities; on top of our present desires, we must create new desires. *And, I do not believe that it will come about by spontaneous combustion.*

It is not enough to say, as a great many people do, that all you need is to make the goods available, and people will buy them, or that a price decline will bring about their distribution. It does not work that way and it is a dangerous philosophy for businessmen or the economy to accept. I do not think that automatic distribution happens any more than that production improves by letting it develop spontaneously through its own combustion system.

We have to do a job of "education" much more than in the
ucation along the lines we have already brought to the
le, particularly American women: that you get
basis of obsolescence, before they wear out.

That factor spreads over a larger area than we sometimes realize. We do it in terms of automobiles, small-size television screens and large-size television screens. We do it for homes. We change whole neighborhoods.

We have to learn to sell better. We have to learn to advertise better. We have to convert basic economic desires, which have no limits among human beings, *into actual demand for goods.* It is not enough to have more purchasing power.

The current volume of *advertising* is nothing compared to what we are going to have to have; and we are not going to feel it, if it is done properly. I do not think there is any limit to the amount of advertising that can be effectively done. Take a great number of people and give them self-respect and a good income and they can think of a thousand ways to spend the income. The one thing that orthodox economics is right about—I am not sure there is anything more—is that there is no limit to human desire. There is no such thing as general overproduction. General overproduction is a dangerous term because when it occurs, a depression can follow. But there is no such thing as general overproduction in the long run.

In any particular program of sales development, the much abused word "research" is important, because in the field of distribution that word is not used. We spend 3.5 billion dollars annually in the United States for production research, and I think that in distribution and retailing we probably spend 3.5 cents for this same kind of basic research. It is a complicated problem because we buy things or make things in wholesale lots, but sell things item by item, through individuals to individuals. That causes tremendous mutations and a mathematical figure which is so terrifying that businessmen solve it by neglecting it.

There is one simplification, however, that can be used. We sell these things, strangely enough, to just *four types of people*—men, women, boys, and girls. We could learn a great deal more about these men and women and boys and girls, if we were to determine their motivations and interests. That would allow us to *anticipate,* for instance, that 84 per cent of all passenger automobiles are going to be pastel shades, instead of having to have them *tell us* that the cars are going to be pastel shades; and everything that will tell us how to evaluate a shoe or stocking or anything else from the consumer's angle will tell us how to increase sales most effectively.

So it is essential for us to do a job of development in terms of research and better selling. *We have to learn selling.* We have to change the emphasis of American industry so that we make selling either *as* important as, or *more* important than, procurement or production. We have to adjust the *rewards* that way too.

We have to change all those things which the American economy insists shall be changed, even though the American businessman may refuse to accept as valid a certain judgment of the economy. If the economy insists that something is valid, I am inclined to agree that it is.

We have to design new goods so that they will appeal to people. There are many agencies working on that, because these changes of design, whether in a helicopter or a new tire, a television set or a radio to carry around in our pocket, are means of stimulating new demand.

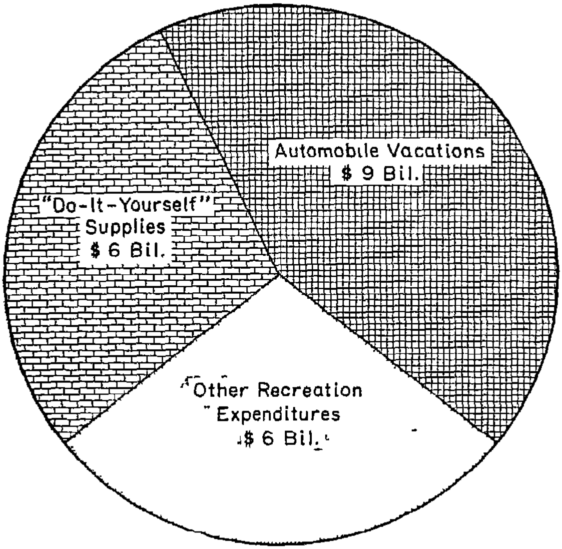
One of the things in which a change in design seems compulsory—and it has been underestimated—is the *design for living* itself. The design for living in our society is a vital factor in our consumption. An important change has already taken place in the United States in the last ten or twelve years.

It is the 5-day week—not a 40-hour week or a 42- or a 36-hour week, but a *5-day* week—because, by the accident of arithmetic, if you subtract 5 from 7 you get, strangely enough, 2½. You get 2½ because if people work 5 days, they quit Friday afternoon and they have all of Friday evening and all of Saturday and all of Sunday available for "leisure" time.

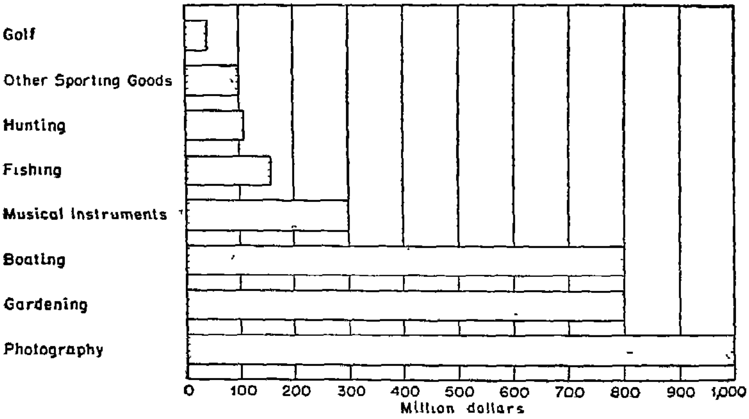
THE PRODUCTIVENESS OF LEISURE TIME

American people are busy during their leisure time. They consume least during working time and do the overwhelming portion of their consumption during their leisure time. This 2½-day weekend has played a role in consumption economics almost as important as the wheel in production. It has created a percentage increase in the time for leisure which is huge in comparison with what we had. It has been the basis of the much-used, and somewhat abused, word "suburbia," because suburbia would have been impossible except for the benefit of a longer weekend. It has created a new pattern of family living, strangely enough including even the father. It has made him a cook, a bad one, but a cook; it has developed a do-it-yourself business in which there are some cut fingers, a lot of healthy swearing, but an enormous industry. It has developed a type of housing—decentralized housing units—which represents approximately 80 per cent of the houses that are being built in the United States at the present time. It has created the requirement for a totally new road structure; it has given us new requirements for utilities from sewers to electric lights. It has created a new series of shopping centers and it has created a decentralization of industry. Business has been enabled to take

Chart 1
In 1953 Leisure Was Big Business



Among the "Other Recreation Expenditures" People Spent the Following on:



advantage of suburban locations, at the same time offering people who work a shorter transit time to and from work.

The 2½-day weekend is going to have an interesting effect on the automobile and oil industries, and probably a more important impact in the next two decades than nuclear fission or nuclear fusion. We have made little study of that effect.

A NEW VENTURE—THE REGIONAL SHOPPING CENTER

But the big development we are interested in, since our main topic is distribution, is not the family unit, or father's place at home, but the *regional shopping center.* A regional shopping center is variously defined. It is a shopping center that is sometimes located on what used to be a farm. It is a series of shopping stores surrounded by parking. Ordinarily it is located at a distance from the community, that is, the urban community. There can be interim developments like the one in Hempstead which is among the most successful in the United States at the present time, but that is not really a regional shopping center.

The first one, interestingly enough, was located in Seattle, Washington, in a place called Northgate. The largest one is located in Detroit. Generally the shopping center consists of satellite stores, surrounding a magnet of traffic: and that magnet of traffic is, in most instances, a number of department stores. The growth of these centers is largely determined by the traffic problem, the problem of more remote living, and changing standards. On the other hand, there is no fixed pattern as yet to the building of a successful shopping center. It is still in the process of trial and error, even as to the location.

In the word "location" we are developing a new type of radius. It used to be that if you wanted to draw a radius on a particular map, you put down the compass and you drew a line with the arm of that compass, either two inches out or three inches out, representing a distance in miles. Now, these radii are drawn on the basis of time—how long it takes to get from a particular point to another point. One radius may be five miles long, and one not too far from it may be fifteen, because it takes the same length of time to cover those two. That also applies to the markets and where they are and to the relationship of your competition to other people—in other words, whether you are taking other people's business or your own. The development of the so-called magnet in the shopping area and its relation to the satellite stores is part of this problem. Do you want to have two magnets, a big store at either end of the complex, or will you have the big store in the center and force people to walk through the satellite stores to get into the main store? These are all things that are in the formative stage. One thing is clear, however: these stores cannot gamble with inadequate parking.

In this young development, there are inevitably going to be mistakes, overstatements and errors. I do not think the development of shopping centers is going to be numerically nearly as great as some of its proponents would say. But it is going to be much more important than its opponents would indicate. It is going to have a marked effect *on the urban centers as well,* because as they come into competition with the regional shopping centers there will have to be new arteries coming into towns, and new parking spaces within the towns. The assortments and the values that the *community* has to offer to the average man, woman or family, *are still great and will remain great for a long time.*

What about the effect on department stores? The shopping center which has a department store (usually called a daughter store rather than a satellite store) has an effect upon mother which will depend upon how big in girth mother was, or is. If the store which creates the daughter store is dominant in the community, and dominant in the volume it takes out of the community, then obviously the daughter store is going to take more away from the mother store than if the mother store were not the dominant unit. It also depends upon the daughter store's location.

There are also some indirect effects. Those indirect effects are related to the problem of splitting buying and selling. If buying and selling is split in the daughter store, there is going to be a tendency to split it in the mother store, despite the fact that one of the great heritages of department stores has been that these operations are related.

The department store itself has strengths and weaknesses. Its strengths are assortments, large organization, and identification. Its weaknesses have been that it competes with *other types of services. I think that this weakness is overestimated.* The department store has a problem of learning to place its emphasis differently. It has a problem of organization, because it has grown up primarily as a *buying* unit, whereas its strength must come in the future from a tremendous emphasis on *selling.*

But it has one strength which seems to be clear and incontrovertible. It has the benefit of being imitated and that is the greatest flattery there is. The mail order businesses have developed themselves not through the use of the mail order system, but through the development of stores. The chain stores, the food stores, the departmental stores, the supermarkets, have shown a parallel trend, exemplified, for example, by the reduction in the number of A & P stores from nearly 20,000 to something under 4000 units. It is difficult to find where the drugs are in drug stores, because they are department stores. The kind of competition that comes from what are called in the trade "papa and mama" stores—the discount houses, the low-overhead houses—this too has been a factor in the development of retailing.

Probably the chief problem for department stores today is that there are too many restrictive measures on them, so that there is no freedom to act. The department stores have been too much on the defensive. They allow too many things to leave their confines.

But their strength, I believe, is unquestioned. The change in the design for living adds to them an enormous asset for growth. This changed horizon in distribution places a greater requirement on distribution generally, retailing specifically, and the department store most particularly, if we are going to build a segment of our economy that is the equivalent of the miraculous productive segment which we have already built. The department store has all the material with which to deal. But it has to learn to educate better and organize better. Department store managements have to learn how to cope with their problems, especially with the new mother-daughter relationship. If they do not learn, they will not survive. In this sense, we need a "new" management, even if the *same human beings as now* continue to be the management in the future. That also applies to the banking business and to industry, generally.

Some interesting questions about capital are involved here, too.

Obviously, that sedate institution called retailing in general, and department stores in particular, had relatively little need for capital in the past. Only directly after the war did it spend a great deal of money for replenishment. But to project the new development into the future is going to require dollars in a large amount, because the new units are expensive.

DEPARTMENT STORE GAINING GROUND

It is not a cause for worry that a good part of current *capital expenditures* are not directly profit making. What the stores are learning to do when acquiring all these nonprofit developments —like real estate for parking, air conditioning, etc.—is to use that kind of fund which has a fixed return. Another way of doing it is to sell the facilities and lease them back. The stores still invest the major portion of their own capital in rapidly turning products or investments. The margin of profit in retailing is not low, but fairly high. Some of the capital outlays for increasing shopping amenities have been characterized as "defensive." A lot of things are defensive. What we are doing in the world generally is defensive. That does not make it wrong. Even in order to stand still you have to move.

You can also argue that air conditioning is a *positive* thing in shopping because it allows people to shop comfortably and therefore they are likely to shop better; and there are now many ways of reducing the basic cost of a defensive measure to a low point. I do not worry, therefore, about doing anything which has to compete successfully with the home, because if the home is air conditioned and the store is not, the impulse will be to order by telephone. I think that you will find that the ultimate return on capital is good.

I am sanguine about the future. It would be interesting to make some guesses as to future earnings but that is not my function. My function is to discuss whether or not the department store is losing ground. My conviction is that on balance, the department store is gaining ground.

III

OUR ECONOMIC FUTURE: 1955-75[*]

A Comparison of Eight Long-Term Projections

On October 20, 1954, at the height of the election campaign, President Eisenhower took everyone by surprise by predicating a Gross National Product of $500 billion at today's prices as a definite national goal for 1965; this compared with a Gross National Product of about $356 billion in 1954. It implied an increase of more than 40 per cent, or an average of 4 per cent a year until 1965.

Did the President pull this figure out of a hat? Certainly not. Since 1952, eight forecasters—all of them widely experienced, including the Congressional Joint Committee on the Economic Report—have made projections of Gross National Product and related factors for long periods, based on elaborate studies. We have compared and tried to reconcile these various published estimates, not only as a matter of political and statistical interest but in view of the ever-wider interest and real importance which these long-term projections have for the nation's business and its thinking.

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[*] By JULIUS HIRSCH, economic consultant, director of the Business Administration Center of the New School for Social Research.

LONG-TERM FORECASTS—MUSHROOMING WITHIN THE PRIVATE ECONOMY

Since olden times, long-term forecasts have been an inevitable necessity for governments—in planning for defense, transportation, for the layout of towns, and for land use. Long-term planning has been equally inevitable in forestry and mining, whether undertaken directly by governments or by other public or semipublic bodies.

Private industries, as a rule, have had no such planning interests until recently. During the past few years, however, more and more industries have developed a demand for long-range forecasting; the larger the firm, the more management has tended to get away from hand-to-mouth patterns of running its affairs, especially its investments, and has begun to base its plans ever more on longer-run market prospects.

The *memorial industry* (Rock of Ages Corporation) was responsible for initiating in 1952 perhaps one of the first of the newer studies on the long-term economic future, to help its business planning. It was followed by the *lumber industry,* the *chemical industry,* and the *steel industry,* to mention only a few of the industries in which numerous enterprises are now making projections for five, ten, and even twenty-five years ahead as an aid to their capital budgeting, planning of new facilities, raw material policies, and even labor policies. General Motors has published a three-year investment plan for $1 billion dollars (in 1939 the value of the whole automobile industry was estimated at $1 billion). Ford has developed forecasts running for five years.

FORECASTS FOR THE WHOLE ECONOMY

All these forecasts for individual industries are based on those made for the economy as a whole. The eight forecasts which are compared here are:

1. PALEY REPORT: *Resources for Freedom.* A report to the President by the President's Materials Policy Commission. June 1952.
2. JULIUS HIRSCH: *Long-Term Forecast of Memorials and Related Business Activity.* A report to Rock of Ages Corp. June 1952.
3. GERHARD COLM AND MARILYN YOUNG: *The American Economy in 1960.* December 1952. National Planning Association, Washington, D. C.
4. STANFORD RESEARCH INSTITUTE: *America's Demand for Wood, 1929-75.* Report to Weyerhaeuser Lumber Co., 1954. Referred to in the text as the Weyerhaeuser Forecast.
5. JOINT COMMITTEE ON THE ECONOMIC REPORT: *Potential Economic Growth of the U. S. during The Next Decade.* October 1954. Herein quoted as "Ensley," after the chief of staff of the committee.
6. DEPARTMENT OF ECONOMICS MCGRAW-HILL BOOK CO., INC.: *The American Economy, Prospects of Growth.* 1954.
7. LEON KEYSERLING: Conference on Economic Progress. *Towards Full Employment and Full Production.* 1954.
8. DEWHURST AND ASSOCIATES: *America's Needs and Resources,* Twentieth Century Fund. 1955.

Of the eight general long-term forecasts prepared and published since 1952, three terminate in 1960, one in 1965, one in 1970, and three in 1975. All give estimates of Gross National Product and population, and all are based on specific assumptions concerning the growth of productivity, or "output per manhour." Most of them also show figures on average weekly hours of work ten or twenty years hence; and some give details on the expected spending of government and other economic data.

All these forecasts assume that future periods of recession, if and as far as they occur, will be compensated for by subsequent periods of exceptional expansion so that, on the average, *economic growth will be at a rate about equal to that which would result from constant, approximately full, employment.* None of these forecasts considers the case of a major depression or of a large-scale war. As to the question of inflation or deflation, almost none of them speaks out clearly.

SPOTLIGHTING FUTURE FRICTIONS

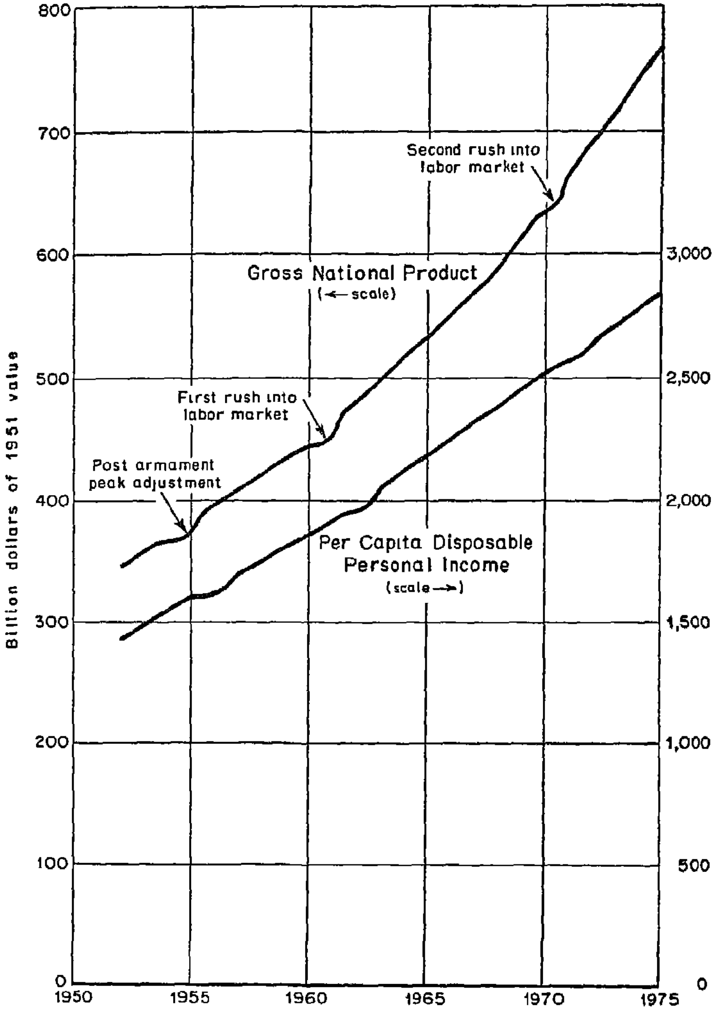
Our own forecast, however, made in 1952 for the memorial industry, tried to indicate specifically a few dates around which some economic changes and resulting disturbances might take place. These dates were 1953, the early 1960's, and the beginning of the 1970's. They are shown in Chart II, on page 33, which is reproduced unchanged from our statement of June 1952.

For early 1953 we then assumed the beginning of a slight recession period, or rather a "plateau situation," because of the decline in defense spending. The early 1960's and 1970's were assumed to present problems because of the sudden rush into the labor market of those who constituted the "baby boom" of the 1940's and early 1950's.

DOUBLING THE SIZE OF THE ECONOMY

While some of the forecasts have tended to be on the conservative side, and others have been highly optimistic, the

Chart 2
Gross National Product and Spendable Income Per Person Will Double from 1952 to 1975



Source Julius Hirsch, *Long Term Forecast of Memorials and Related Business Activity*, N Y, 1952, p 22.

projections in general imply *a doubling of the economy within the next 20-25 years and a near doubling of our living standards by 1975.*

TABLE I. POPULATION, PRODUCTION, AND LIVING STANDARDS

	1951	1952	1953	1960	1965	1970	1975
Gross National Product ($ Billions)							
Hirsch	—	345	—	440	530	—	763
Colm	329	—	—	425	—	—	—
Ensley	—	—	364.9	—	525–535	—	—
Weyerhaeuser	—	348	—	412	465	527	586
Keyserling	—	—	363.9	500–600	—	—	—
McGraw-Hill	—	—	367	415	—	562	—
Paley Report	329	—	—	—	—	—	634
Dewhurst	—	—	—	412.5	—	—	—
Population (Millions)							
Hirsch	—	151.4	—	169.1	183	—	197.8
Colm	151	—	—	169	—	—	—
Ensley	—	—	159.6	—	189.9	—	—
Weyerhaeuser	—	157	—	176	187	199	212
Keyserling	—	—	—	—	—	—	—
McGraw-Hill	—	—	159.6	—	—	191.7	—
Paley Report	151	—	—	—	—	—	193
Dewhurst	—	—	—	177.0	—	—	—
Per Capita Disposable Income (Dollars)							
Hirsch	—	1425		1834	2204	—	2828
Colm	1458	—	—	1800	—	—	—
Ensley	—	—	1567	—	2000	—	—
Weyerhaeuser	—	1425	—	1522	1592	1665	1731
Keyserling	—	—	—	—	—	—	—
McGraw-Hill	—	—	—	1708	—	2165	—
Paley Report	—	—	—	—	—	—	—
Dewhurst	—	—	—	1610	—	—	—

The differences between the various forecasts draw much further apart as they attack more distant dates; *but for 1960 and even 1965, the similarity of the various figures on Gross National Product, for example, are astonishingly close, encouragingly close,* so close indeed that they seem to reinforce and to confirm each other.

The source of the widest diversity is in the forecast on productivity. In comparison with this, the other disagreements are generally small.

TABLE II. A COMPARISON OF FORECASTS FOR 1960 AND 1975

A. Forecast for 1960

	Low Projection *(Weyerhaeuser)*	Medium Projection *(Colm)*	High Projection *(Keyserling)*
Gross National Product	$412 bill.	$425 bill.	$500–600 bill.
Civilian employment	69.8 mill.	69.0 mill.	—
Average weekly hours	40	39	—
Productivity (cumulative per annum)	+1.5%	+2.5%	+3.5–4%

B. Forecast for 1975

	Low Projection *(Weyerhaeuser)*	Medium Projection *(Paley Report)*	High Projection *(Hirsch)*
Gross National Product	$586 bill.	$634 bill.	$763 bill.
Civilian employment	88.2 mill.	75.5 mill.[a]	85.5 mill.
Average weekly hours	37.1	35.4	35.0
Productivity (cumulative per annum)	+1.5%	+2.5%	+2.5–3%

[a] This figure is acknowledged as being too low on the basis of new statistics by the Bureau of the Census.

WHO IS RIGHT ABOUT PRODUCTIVITY?

The eight forecasts considered here differ in their estimates on productivity. This is clear from Table III.

TABLE III. EIGHT PRODUCTIVITY ESTIMATES, 1951–75

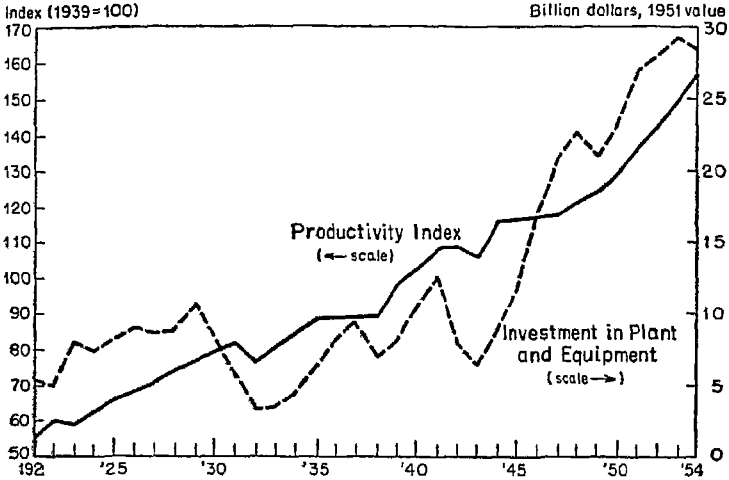
	1951	1952	1953	1960	1965	1970	1975
Increase in Output per Manhour (Per Cent per Annum)							
Hirsch	—	3.5	—	2.5–3	2.5–3	2.5–3	2.5–3
Colm	2.7	—	—	2.5	—	—	—
Ensley	—	—	2.75–3	2.5–3	2.5–3	2.5–3	2.5–3
Weyerhaeuser	—	1.5	—	1.5	1.5	1.5	1.5
Keyserling	—	—	—	3.5–4	—	—	—
McGraw-Hill	—	2.5	—	2.5	2.5	2.5	2.5
Paley Report	—	2.5	—	2.5	2.5	2.5	2.5
Dewhurst	—	—	—	2.3	—	—	—

Who is right with respect to the future development of productivity? On the correctness of this answer depends the degree of prosperity and economic welfare which the United States will enjoy during the next generation. Chart III, on page 37, shows rather conservatively the past progress of productivity and compares it with investment in plant and equipment. In it we used the official productivity figures of the Department of Labor until 1945, although we consider them understatements. Thereafter we follow mainly the President's Council of Economic Advisers with an average 2.5 per cent rate of increase; and after 1951 we used the estimates of the Joint Committee on the Economic Report, which average about 3 per cent.

The 1.5 per cent productivity projection of Weyerhaeuser is undoubtedly too low; the lowest officially acknowledged rates for the past are 2.1 per cent. Our own estimates and those of many others for the years after 1953 are around 2.5 per cent to 3 per cent cumulatively per annum.

I think our productivity has played a greater role in the past than is generally acknowledged and will do more so in the future. It is America's pride and we should learn more about it. Consider, for instance, how closely the figures on productivity in Chart III follow the huge increase of investment. In 1939, the value of the entire manufacturing industry in the United States was estimated by the Census at 50 billion dollars. Today we add yearly in plant and equipment more than 26 billion dollars, in-

Chart 3
Investment in Plant and Equipment and
the Growth of Productivity
1921 – 1954



Source:–Productivity Index: Calculated by Julius Hirsch; based on estimates of U.S. Bureau of Labor Statistics, President's Council of Economic Advisers, Joint Committee on Economic Report.
Investment in Plant and Equipment: Calculated by Julius Hirsch; based on estimates of Hoffenberger, Barger, and the President's Council of Economic Advisers.

cluding public utilities and commercial facilities. Thus every 3½ years (adjusting for the lower value of today's dollar) we add as much to the capacity of our production and transportation facilities as the capacity of our whole huge manufacturing industry in 1939.

ACCELERATING PRODUCTIVITY— A MIXED BLESSING

The curve of productivity shows that an acceleration is going on in the steady growth of our output per labor hour, which is throwing into our lap this year an unpaid-for "gift" of $13 billion for the same labor hours and the same facilities as last year; *it is our greatest anti-inflationary force.*

Productivity growth is not without danger when stimulated too much. *Our productivity tends to grow more quickly at times than our demand for goods and services.* Benjamin Graham[1] calls this "excess productivity," and feels that it is even a structural characteristic of the American economy. While productivity growth yields ever-growing funds for consumption and investment, it also contains a threat of unemployment if it is not regulated by a well-organized policy.

I have myself proposed programs for improving productivity,[2] but I would not follow Mr. Keyserling who says that we can and should push productivity growth to 5 per cent or 6 per cent a year. Even at productivity growth rates of 2.5 and 3 per cent a year, an enormous increase of production will take place in the future. Output will grow by more than 45 per cent by 1965, but

[1] "Some Structural Relationships Bearing Upon Full Employment," *The Security Analyst,* April 1955.

[2] See for example: "Productivity—The Key to Better Days," *Nation's Business,* April 1950.

population will grow only by 18-19 per cent. By 1975 output will about double, but population will rise by only a third.

TOWARD THE 35-HOUR WEEK

If then, in the future, we are not to see heavy and intolerable unemployment, consumption must increase, investment must increase even more, and *weekly labor hours must go down.* This is recognized in the eight forecasts as shown in Table IV.

TABLE IV. MORE CONSUMPTION—LESS HUMAN EFFORT

	1951	1952	1953	1960	1965	1970	1975
Average Weekly Hours							
Hirsch	—	40.5	—	39.0	37–36	—	35
Colm	40.3	—	—	39	—	—	—
Ensley	—	—	40	—	36	—	—
Weyerhaeuser	—	41.7	—	40	39.1	38.1	37.1
Keyserling	—	—	—	—	—	—	—
McGraw-Hill	—	—	41	38	—	35	—
Paley Report	—	—	—	—	—	—	35.4
Dewhurst	—	—	—	37.5	—	—	—
Consumer Expenditures ($ Billions)							
Hirsch	—	—	—	—	—	—	—
Colm	—	—	—	291.1	—	—	—
Ensley	—	—	230.1	—	357	—	—
Weyerhaeuser	—	—	—	—	—	—	—
Keyserling	—	—	227.7	330	—	—	—
McGraw-Hill	—	—	230	285	—	420	—
Paley Report	—	—	—	—	—	—	—
Dewhurst	—	—	—	270.0	—	—	—

Most of us are convinced that the hours of work must be brought down to thirty-five a week around 1970-75, because the gain in productivity must be shared by capital for plant improvement, by the consumer through lower prices or better quality, and by labor in better wages and/or fewer working hours. By 1975, it will be shared by many more workers than today.

Now we have a labor force of 65 million civilian workers; in 1975 we may have 85 to 90 million as is shown by the estimates in Table V.

TABLE V. THE GROWING LABOR FORCE

	1951	1952	1953	1960	1965	1970	1975
Civilian Employment (Millions)							
Hirsch	—	—	—	—	—	—	85.5
Colm	62.9	—	—	69.0	—	—	—
Ensley	—	—	62.0	—	73.0	—	—
Weyerhaeuser	—	63.0	—	69.8	75.0	81.4	88.2
Keyserling	—	—	—	—	—	—	—
McGraw-Hill	—	—	—	—	—	—	—
Paley Report	—	—	—	—	—	—	75.5
Dewhurst	—	—	—	69.0	—	—	—
Total Labor Force (Millions)							
Hirsch	—	—	—	—	—	—	—
Colm	66	—	—	72.5	—	—	—
Ensley	—	—	67.0	—	79.0	—	—
Weyerhaeuser	—	67.4	—	72.3	77.6	83.9	90.7
Keyserling	—	—	—	—	—	—	—
McGraw-Hill	—	—	65.0	—	—	82.0	—
Paley Report	—	—	—	—	—	—	82.0
Dewhurst	—	—	—	72.5	—	—	—

DIFFERENCES IN THE RATES OF PROGRESS

While Gross National Product *as a whole* will about tend to double by 1975, there will be *striking changes in its structure.*

For example, the proportion which will be spent by consumers on durable and non-durable goods will shift substantially, and the rates of growth of different industries will diverge even more.

CHANGING CONSUMPTION TRENDS

Personal consumption expenditures should be in the vicinity of $450 billion in 1975, as compared with $230 billion in 1953, but food, clothing, and shoes, now 51.4 per cent of the total, will be down below 39 per cent.

The strongest influence on future consumption trends will be the further growth of leisure time, and the increasing amounts available to each family for goods and services beyond those necessary to maintain a basic existence.

TABLE VI. THE CHANGING CONSUMER DOLLAR

	1953			1975		
	($ Billions)	*Per Cent*		*($ Billions)*	*Per Cent*	
Personal consumer expenditures	230.0	100.0		450.0	100.0	
Shoes & clothing	19.5	8.4	51.4	27.0	6.0	37.8
Food & alcohol	72.0	31.3		100.0	22.2	
Other non-durables	27.0	11.7		43.0	9.6	
Consumer durables	28.0		12.2	100.0		22.2
Services	83.0		36.4	180.0		40.0

GROWING POPULATION—A GREAT DEMAND RESERVOIR

In all the centuries and millennia of the past, nations had wars and famines and epidemics because they did not know where to find food and clothing for the newcomers. Now we are greatly worried about where to find customers for our huge surpluses of wheat and cotton and butter.

Therefore we have reversed the philosophy of the millennia—our enormous increase in production makes every new citizen a welcome consumer, at least for a generation or two and at least in this country. That goes for each of the 4 million new babies of today and the net 2½ million persons by which our nation is increasing each year.

As Chart IV on page 43 shows, these newcomers will be an important source of additional consumer and investment demand.

INDUSTRIES TO FARE DIFFERENTLY

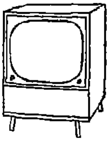
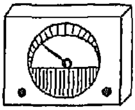
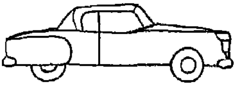
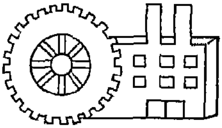
Not all our industries will grow at an equal pace. Some important differences can already be distinguished now.

Such industries as *food* will grow by considerably less than the average. The expansion of the economy envisaged by the median projections would mean an increase of about 10 per cent in per capita food consumption over the next 20-25 years. Added to the projected population growth, total *food* requirements for domestic use would then rise some 45 per cent from 1953 to 1975.

The increase in food consumption should largely reflect trends towards substantially larger consumption per person of poultry and fruits by about 17 per cent, for meat, eggs, and vegetables by about 10 per cent, and for fluid milk and cream by about 5 per cent. There should be, in all likelihood, a smaller consumption per person of cereals (perhaps less than 5 per cent) and of dry beans and potatoes by about 14 to 17 per cent. Little

Chart 4
Demand and Population Growth

At present consumption rates, only the *additional* demand generated by a 2½ million annual *increase in population*, would, over ten years, call for:

3,500,000 Television Receivers	
18,000,000 Radio Sets	
8,000,000 Automobiles	
7,500,000 Dwelling Units	
$ 3,000,000,000 Worth of Apparel	
$ 100,000,000,000 of New Plant, Equipment, and Commercial Facilities	

change is expected in per capita consumption of fats. Part of the increase represents shifts towards more processing and service, such as frozen and prepared foods. Probably the smallest increase in demand will come from exports.

While total demand, domestic and foreign, for agricultural products might rise to some 40 per cent over the next twenty years or so, it should be noted that approximately 8 per cent of 1953 production was in excess of requirements at 1953 prices and went largely into stocks of the Commodity Credit Corporation. In net terms, therefore, an increase of about 30 per cent in agricultural production by 1975 from 1953 levels would be necessary to meet prospective demand. On its face, this certainly does not appear difficult to obtain. Rather, surpluses may be our greater problem.

Total net income in agriculture will probably increase at best by 30 per cent by 1975, perhaps less. In order that farm operators may not lag behind the rest of the population in terms of increases in real income, there would need to be a reduction of perhaps 20 per cent or more in the number of farms by that time. Whether and to what degree this will be realized will be decided politically, also on the basis of food requirements in case of war or other emergencies.[3]

OTHER INDUSTRIES

Consumer expenditures on *shoes and clothing* will also grow in absolute terms, though as a percentage of total expenditures they may shrink in importance.

On the other hand, some parts of the *textile industry* will grow much more than average. Great strides forward will be made in the production of synthetic fibers. They are expected to constitute about 47 per cent of all fibers used in 1975, as compared with 23 per cent at the present time. The natural fibers will lose ground. The most spectacular increase will be in synthetic fibers other than rayon and acetate, as may be seen from Table VII.

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[3] The forecast of agriculture is based on: N. Koffsky, "The Long-Term Price Outlook and Its Impact on American Agriculture," *Journal of Farm Economics,* Proceedings, December 1954, pp. 790-798.

TABLE VII. PERCENTAGE DISTRIBUTION OF UNITED STATES TEXTILE PRODUCTION 1952–75

	Natural Fibers				Synthetic Fibers		
Year	Cotton	Wool	Silk	Total	Rayon & Acetate	Other	Total
1952	69.6	7.4	.1	77.1	18.9	4.0	100
1960	62.0	6.3	.1	68.4	20.0	11.6	100
1965	57.0	6.0	.1	63.1	21.8	15.1	100
1970	52.0	5.8	.1	57.9	22.3	19.8	100
1975	47.9	5.6	.1	53.6	22.7	23.7	100

SOURCE: Weyerhaeuser, p. 56. Reproduced by permission of the Stanford Research Institute.

The *consumer durable industries* will forge far ahead. Production of close to 12 million *passenger cars* a year is envisaged for 1975; also a large number of private *helicopters.* Purchases of furniture are expected to more than double. Manufacturers of *appliances*—some yet to be invented or developed—will find at least three times as many customers in 1975 as now; domestic use of *electricity* will grow commensurately. Especially rapid growth is foreseen for recreational and educational outlays such as foreign travel, reading, sports, secondary education, and adult education.

Housing, too, will grow apace. While the number of families between now and 1975 is expected to increase by somewhat less than 40 per cent, rather conservative estimates have it that about 2 million houses a year will be built by the mid-1970's as compared with 1.2 to 1.3 million houses on the average at present. Moreover, the quality of houses will improve. To serve the growing suburban communities and the increasing number of families, the *number of outlets in wholesaling and retailing* is expected to be more than twice their present number.

Heavy industry will be out ahead too. Capacity is expected to grow by more than 300 per cent in *electrical generating, aluminum,* and *petro-chemicals.* Who can guess how far electronics will grow?[4]

To furnish the greatly increased amount of energy needed by 1975, more than double the amounts that are now produced of *crude oil, natural gas,* and even *coal,* are envisaged as necessary. However, the more rapid than expected growth of *atomic energy* could act as a brake on this growth and might open additional new horizons.

Almost no parts of the economy are expected to shrink in absolute terms, although there will be considerably fewer people employed in some areas wherever greater mechanization is taking place.

WHAT WILL BE THE MOST RAPIDLY GROWING PARTS OF THE COUNTRY?

Just as different industries are expected to show different rates of growth within the next 20-25 years, so different parts of the country will register various rates of expansion.

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[4] See: David Sarnoff, *A Business Based on Research* (New York: Radio Corporation of America, 1953).

AMERICA'S THIRD MIGRATION

America today is witnessing a *third migration.*

The *first* American migration was that of the colonists along the coasts, the rivers, and the Indian paths. The *second* migration followed the railways throughout the country. The *third* migration, that of today, is something different. It is not attached to rivers or airlines or railways or highways—although it utilizes all of these. It is a movement toward the sun, *toward the South, the Southwest, and the West.*

It is a movement of older people who want to live longer, and younger people who want to live better. It is a movement of agriculture toward areas which offer more diversified land use and longer growing seasons; the movement of commerce and industry, both heavy and light.

To escape the harsh northern winters and the violent fluctuations of temperature, the 60-plus-year-olds who through growing pensions and social security are becoming more independent, are looking and moving toward the brighter sun and the milder climate of the South and Southwest.

These are now the most rapidly growing areas of the U. S., and they will continue to grow the most, for they have the most to offer in the way of better living, not only for older people, but above all for the young.

For industry, too, they have great advantages: fairly constant climates and humidity, the possibility of considerable savings through the need for less heavy buildings, lower industrial heating costs, and better location near some of America's major markets.

POWER AND WATER SHORTAGES WILL BE OVERCOME

What has been holding back the full development of areas such as California, Arizona, and Nevada up to now, has been the lack of two essentials: power (especially coal) and water. As these problems are overcome, particularly by the development of atomic energy, which can be located almost anywhere, and by the eventual mass purification of sea water, the whole of the West and Southwest will experience an amazing era of development. A new economic empire will be built up there.

Most of the population growth will gravitate towards these regions, with the older parts of the country doing little more than holding their own.

THREE LAST QUESTIONS

Can these goals be reached only by going through *more periods of inflation* and perhaps subsequent deflation? And if our nation should succeed in maintaining reasonably constant full employment—will not this, in turn, open other new horizons —namely, a new society with a labor force no longer coerced by the threat of unemployment but spurred on to better efforts by a greatly intensified *"incentive" wage structure.* And—if America indeed eliminates poverty—what will be the influence of this on the rest of the world?

IS INFLATION INEVITABLE FOR APPROXIMATELY FULL EMPLOYMENT?

The growth of American business since 1939 has gone hand in hand with a period of relatively heavy inflation. Since 1939 we have doubled our real national income and cut the dollar at least in half. Must we, in order to achieve the goal of further growth, experience more such periods, or at least periods of controlled constantly progressive inflation, as advocated by some economists?

Or, on the other hand, will more rapid progress of output per labor hour, perhaps spurred on by the new factor of "automation," foster an opposite tendency, bringing on more unemployment?

To quote Benjamin Graham:[5]

> The excellent employment record of the past 13 years and particularly the resistance shown by our economy to the depressive influences of 1954 has given American business a new confidence in its ability to keep forging ahead without nasty setbacks of the old-fashioned kind.
>
> This optimistic thesis, however, might be restated by some in different terms. Either business will *expand indefinitely* at the accelerating rate required to maintain full employment or else the Administration (of either party) *will intervene as massively as is necessary to rescue us from any tailspin.* This view would hold, in other words, that active business and nearly full employment are guaranteed.
>
> The only question is whether we shall have them *with or without further inflation.*

No direct answer to this is given in six of the eight forecasts. The only one to speak up is Mr. Keyserling. He proposes that until 1960 the government should push up the rate of productivity to 5 per cent or 6 per cent a year. Such a rapid replacement of labor by machines would certainly threaten unemployment: government, therefore, should reduce taxes by 20 per cent, which means by $13 billion, and increase government outlays by $6.6 billion. Then, he says, purchasing power will grow so that no serious deficit and no inflation will occur.

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[5] See Chapter VI.

TABLE VIII. A PROJECTION OF GOVERNMENT EXPENDITURES

	1951	1952	1953	1960	1965	1970	1975
Total Government Expenditures ($ Billions)							
Hirsch	—	—	—	—	—	—	—
Colm	—	—	—	97.9	—	—	—
Ensley	—	—	85.2	—	97	—	—
Weyerhaeuser	—	—	—	—	—	—	—
Keyserling	—	—	83.5	90.0	—	—	—
McGraw-Hill	—	—	—	—	—	—	—
Paley Report	—	—	—	—	—	—	—
Dewhurst	—	—	—	81.0	—	—	—

The Joint Committee on the Economic Report (Ensley) approaches this question in a more cautious way. According to the Committee, if the nation is to reach, in prices of today, a Gross National Product of $535 billion in 1965, three preconditions are held necessary:

1. The amount of disposable *income saved* should *be reduced* from a recent 8 per cent to 6 per cent, which reduction would yield about $8 billion more of necessary demand for goods.

2. *Military expenditures* are expected to be at a maintenance level but *non-military expenditures* by all kinds of government would have to expand much more rapidly than the Gross

National Product itself (evidently this mirrors the idea of the large road building programs).

3. And finally there must be a substantial further shortening of the work week (if an inadmissible level of unemployment is not to occur).

Every Federal government, barring a major war, has means at hand to secure a high level of employment for 10 years and probably longer; the $101 billion road building program proposed by President Eisenhower can alone mean 2 million more employed over 10 years; low interest rates will boom construction; development of our natural resources has almost unlimited possibilities. And the election of November 1954 seems to have proved convincingly that no party in power can hope to win if there is more than a minimum of unemployment (beyond the inevitable unemployables) around election day. Up to now the easiest way out of this was deficit spending.

WILL THERE BE A NEW SOCIETY WITHOUT THREAT OF UNEMPLOYMENT?

To achieve full employment, however, it should not be inevitable to resort to another serious inflation. The possibility of creating more employment by cheating the saving population, especially its older segment, will indeed diminish with every year that elapses, because one development is under way which, within ten years or so, will make any betrayal of the saver by debasing the value of money more and more difficult.

That part of the population vitally interested in the stability of money is growing by leaps and bounds. The older we become, the more we become a nation of pensioners, from 65 years on and often much earlier. A steadily growing part of the nation will soon have, as the surest basis of their income, social security, life insurance, and other pensions. The group 65 years and above numbered 6.7 million in 1930; it will be 17-17.5 million in 1965 and perhaps 25 million in 1975. But the interest in stability begins at a much earlier age. In 10 years 18-20 per cent of the nation will be over 60, keenly interested in seeing their security in the value of money maintained. By their vote—perhaps 25 per cent or more of all voters—*they will be strong enough to stop the betrayal of people who rely on their savings.* This will mean the end of the easy way out through engineered inflation and it will be a guarantee of solidly growing prosperity, based on the stability of money savings.

WHAT WILL BE THE INFLUENCE ON THE OUTSIDE WORLD?

One last consequence, politically perhaps, might open a new horizon. If the goals of development which are projected so closely by eight independent forecasters (and in January 1955 also by the President's Council of Economic Advisers) should be achieved with approximately full employment—though perhaps not without considerable trial and error—it may change fundamentally some of the structure of our society. *After inevitable initial difficulties, it may well mean the end of poverty and even the end of the "proletariat" in the United States.* Whether this will radiate automatically from here into ever larger parts of the outer world is, however, another problem.

Certainly, by improving the wealth of the masses in our nation systematically and with increasing speed, we prove ever more the superiority of the economic system which we are developing. Communism promises security for all, but in return requires the sacrifice of freedom and opportunity. Today we guarantee better and better minimum standards, but with an opportunity for everyone for incomparably higher income and performance.

We should warn against complacency, however. It is not without danger to become more and more wealthy when surrounded by want and poverty.

And it is wrong economics to assume that every other nation can do the same as we. Let us never forget: ours is a country of plenty, plenty of space and soil, plenty of most raw materials, plenty of economic energy—while only too many other nations have to struggle in an economy of scarcity—scarcities of land, scarcity of raw materials and other facilities, and great impediments to progress by historic neglect or political misfortune.

It is not sufficient to preach to them greater productivity. It is not even sufficient to teach them American production methods for which they are not entirely ripe.

STRENGTHENING WORLD PROGRESS

If we are to enjoy in peace the great, even wonderful, prospects which this country has opened to those of us who will live through the next 20-25 years, we must also help by practical action to create a sure basis of worldwide progress.

We should do it by reducing the uncertainties in world markets and by strengthening the world's capital basis, not by gifts, but by creating conditions which will bring our own most efficient business leaders into immediate, active cooperation with the "underdeveloped" world.

If our future shall hold and almost certainly will hold growing wealth and a great economic advance, let us secure it by helping the world around us to achieve progress too and victory over poverty.

IV

NEW HORIZONS IN TECHNOLOGY: AUTOMATION *

One of the greatest problems with respect to automation is to define it, because one could almost say it means all things to all men. The basic necessity is to distinguish automation from just bigger and better machines—something to which we have been used for a long time, and something which cannot really be considered a *new* horizon, for we have more or less learned to cope with their effects already. Only when we know what automation really is can we evaluate its potentials, applications, and implications.

Real automation has so great a fascination, I think, partly because man is introspective, and in his introspection, man notices that his own body and his own mind have a great amount of automaticity. He is, therefore, fascinated by the possibility that he might be able to manufacture an object which has some of those same characteristics of automaticity. On that account alone, he is fascinated by the term.

Beyond that, however, there is a second, fundamental question. Is what we now refer to as automation simply a continuation of the industrial revolution, or will it bring about a *completely new revolution* of some kind? That is of great social, economic, and political interest.

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* By CUTHBERT C. HURD, Director, Electronic Data Processing, International Business Machines Corporation.

Finally, most of us are interested in ideas which we do not fully understand, in which there is a terminology which is hard to come by. Automation is a field in which the terminology, for most of us, is completely foreign, because it comes from "information theory," from mathematics, from electronic engineering.

To understand what automation really is, it is necessary first to describe what it is not. That includes most of the *automatic devices* which are now being used in factories for fabrication and for material handling; and most of the *devices* which are available for *automatically* carrying out clerical, simple mathematical and information-handling functions. After the misconceptions are cleared away it will be possible to define *automation* and to speculate about what can, must, and probably will be done in order to bring about *real* automation, the fully automatic business, the fully automatic factory. The purely economic aspects of the subject are discussed in Chapter V.

THE PRESENT SCOPE OF AUTOMATIC DEVICES

Most of the devices that are now available for carrying out automatic functions in the factory would *not be classed as automation.* By an automatic function, one means the possibility of carrying out in sequence at least two operations without human intervention. We are constantly trying to develop and improve such automatic functions in order to put more horsepower at the disposal of each factory worker and thus to produce more goods with fewer labor hours. One hopes to eliminate drudgery. One hopes to upgrade jobs. One hopes to give greater satisfaction to those doing the jobs which exist in the factory. In this area, industry throughout the world has had great success, and this success is the achievement of the industrial revolution. That revolution has been characterized by the use of ever more complex machines.

One of the most complicated automatic devices now in use is in automobile production. It will have a great bearing on the outcome of what *Time* magazine referred to a few weeks ago as the "Battle of Detroit." We all know about the great production battle which is being waged there to provide either better automobiles at the same cost, or automobiles of equal worth at less cost. In order to do this all of the major automobile companies and manufacturers of subassemblies and parts have tried to introduce automatic machines to the greatest extent possible. The automobile industry in Detroit has one advantage in this respect—in general, automobile manufacturers make major model changes, which means major changes in design of large components of an automobile, only every two years, sometimes only every three years. Thus a large investment in automatic machinery in the automobile industry is reasonable.

The most powerful kinds of machines which are presently used in Detroit are the so-called *transfer machines.* These machines can perform in any order, or in any sequence which you care to specify, any of the industrial operations, such as drilling, facing, boring, pressing, and transfer. Further, the transfer machine picks up the work piece from one such station and, without human intervention, carries it to the next.

A transfer machine produced by the Cross Tool Company, for example, is truely remarkable in its power. The machine has 104 individual stations. It has a loading station, stations for machining, for part-handling, for inspection, for unloading. In the course of passing through this machine, products undergo the following operations, although not in this order: 265 drilling operations, 6 milling operations, 21 boring operations, 56 reaming operations, 101 counter-sinking operations, 106 tapping operations, and, intermingled, 133 inspection operations. But, impressive as this is, it is not automation.

It is not automation because an important characteristic of *transfer machines* is that one must "program" them. That is, one must give them specific sequences and instructions. In a sense, one programs these machines when one orders them from the factory where they are made and tells the manufacturer the specific sequence of operations which the machine is to carry out. It is not possible to alter the specific sequence of the machine once it has been made. To change the sequence of operations or the content of operations to a notable degree, one needs to order and purchase a new machine. In view of this, it is of importance that Detroit, in general, changes models radically only every few years. The fact of programing, or of fixing the sequence of operations in advance, substantially limits the applicability of transfer machines in industries which make frequent changes of model or design.

Thus a transfer machine has a fixed program. Within that fixed program, however, it can perform some self-regulating functions. For example, if a study indicates that on the average a tool can carry out 5000 drillings before the tool wears out and no longer produces a good piece, then a simple counter can be built in to record the number of times that a drill has been used; at the end of 5000 operations it will cause the machine to stop and flash a red light. This is one example of illustrated convenience which is automatic and useful.

This, then, is "Detroit automation"—automatic machines for production. This type of machine has great potentialities. It has a fixed program. The program is essentially changed every few years. But it is not real *automation.* It is much more a natural though spectacular extension of what has been going on ever since the industrial revolution—the move toward larger and more complicated machines.

Another example of progress towards *automatic production* is in the manufacture of components for electronic data processing machines, such as UNIVAC.

A large electronic machine is made from, perhaps, 1000 *multi-pluggable units.* These consist of several tubes on a frame, containing a maze of wiring. There are up to 150 different kinds of such units. With the exception of the tube manufacture, the casting of the frame, and the production of the resistors and diodes (the components in the body of the unit) all of the wiring and assembly is done by hand.

In our next generation of electronic data processing machines —and the father of this generation is already here—we will no longer use multi-pluggable units of this kind. Instead we will use a printed circuit.

The printed circuit consists of a card on which are etched metallic lines by a photographic process. These lines will take the place of a whole jungle of hand connected wires.

The other components of this card will also be assembled automatically: transistors, resistors, diodes, and condensers. A machine to assemble these cards, the first of which has been delivered to IBM, is called Autofab. It is manufactured by General Mills and will add greatly to our assembly of automatic machines.

AUTOMATIC HANDLING OF INFORMATION

We have discussed so far two examples of automatic machines (not automation) which are used for carrying out *production* operations either faster, cheaper, or with less effort.

A different type of machine is that which handles *information* automatically. It is desirable to handle information automatically in at least two major areas, although these areas are convergent. The first is the scientific and engineering area, the second is the area of business management.

What one does in the first area—that is, in the scientific and engineering area—is to describe completely in quantitative terms, by a numerical method, the characteristics of, say, a large distillation plant, or of a large catalytic cracking plant, or of an airplane. This is done by obtaining first, through basic work in physics, chemistry, and engineering, quantitative descriptions of characteristics of the components of these large entities, and quantitative descriptions of characteristics of devices which combine these components into integrated objects of equipment.

As an illustration of the use of automatic handling of information in the scientific and engineering area, let us consider that the problem is one of constructing a catalytic cracking plant so as to obtain the best design for the desired magnitude of operations. A direct solution to obtaining the best design of any such piece of physical equipment has never been found, and perhaps never will be found. It is thus necessary to carry out a large number of experiments for various possible choices of design. But such experimentation is prohibitively costly. In the case of a catalytic cracking process, it may cost $30 million to build a plant. You can build and then operate a plant to see if, for a given set of inputs, it gives the desired output, but such a procedure would obviously cripple any of the larger oil companies because the experiment costs $30 million.

A better way, and a way which has been used extensively, is to find chemical, refinery, and petroleum engineers who are familiar with the characteristics of the cracking process and with their quantitative or numerical descriptions, and ask them, by using paper and pencil, to make a calculation which essentially simulates the action of the proposed petroleum plant under a given set of conditions.

And finally, the best way to do it is to get a large-scale automatic computing machine. The computing machine is programed in such a way that it can act completely as if it were itself a catalytic cracking process. With the aid of such a machine, you can examine hundreds or thousands of different combinations of input and output and methods of control, until you finally have a description of the plant you want to build.

In the second area referred to above, the area of *administering a business*—any business in the world—one has information which comes in from the sales force. When an order goes through a sales department in the home office, a decision must be made as to whether this order can be filled immediately from stock; if so, through what method it ought to be transported to the customer; if it cannot be filled from stock, where it is to be made, where the raw materials are to come from, how the machines are to be scheduled which will take the raw materials and fabricate them, and finally how to ship the product. These are but a dozen of the thousands of decisions which must be made, each of them elementary in the presence of adequate information. Each decision can be specified and, as in the case of the catalytic process, can be described with numbers and alphabetic symbols.

In general, a businessman does not enjoy making such elementary decisions once general policy has been established. Further, a person probably performs such operations at a rate of speed not exceeding several hundred per hour under favorable conditions. On the other hand, an electronic data processing machine can carry out operations at the rate of 10,000 per second. The important characteristic is that all the work involved here is completely routine once policy has been specified.

The main sections of the IBM Type 705 Electronic Data Processing Machine, for example, are reading and writing facility, memory, processing. Reading and writing are carried out principally by magnetic tape which transmits information at the rate of 15,000 characters per second. Memory consists of 140,000 small ferrite cores, any appropriate portion of which can be interrogated in 0.00001 second.

Now, we can make an interesting comparison here—people always do. There are 140,000 memory locations in this machine; that is, 140,000 places where you either put a bit of information or you do not. Most of the counts of the number of neurons in a human brain give you the order of about 10 billion. Ten billion is ten to the tenth power; 140,000 is ten to the fifth power. The human being then has 100,000 as many memory locations as this machine does.

Processing in the machine occurs at the rate of about 10,000 operations per second. All of these speeds are possible of course only because electronic components and the speeds of the individual sections have been chosen in such a way that the IBM Type 705 machine is balanced and "well adjusted."

The control of the machine is exercised by a series of instructions which are written by a human. In general, an instruction specifies the location in memory of a number, and specifies also what is to be done with the number. For example, "Add the number in memory location 1102." If there is an agreement with the machine designer that the instruction to "add" shall always be given by writing the number "2," then the above instruction can be written "2 1102." Many other kinds of operations, such as subtract, multiply, divide, etc., can each be assigned a "code" number and fed into the machine in a regular sequence that will prevent the machine from confusing instructions with other information.

To feed the instructions to the machine you have an operator at a console. Every machine in that assemblage can be operated by this operator. Normally there is no human intervention, because these machines run for hours at 10,000 operations a second without human intervention. But in case an error has been made by the machine, which makes an error about every 100,000,000 operations; or an error has been made in programing the machine for the problem; or an error has been made because nonsense information or unedited information has been entered into the machine—in all these cases the machine can be made to stop. The location of the error can be displayed on the console in front of the operator, and the operator at that time must make a decision as to what to do next.

And of course, that decision involves inference; it involves induction; it involves creative thinking. You cannot program this into a machine.

With the above conventions, then, we note that instructions can be described with numbers, and since a computer stores numbers it can therefore store instructions. Further, since a computer processes numbers which are stored in its memory, *it can also process the numbers which represent instructions.* That is, since the computer can do arithmetic on any number, or logical comparisons or logical deductions based on numbers which are stored in its memory, and since instructions are stored in the memory as numbers, the machine can carry out deductions followed by arithmetic on the instructions or can choose from among several sets of instructions to be followed.

AUTOMATION PROPER—THE FEEDBACK

This means that, depending upon the stage which is reached in a process or in a computation, the computer "feeds back" the condition of memory at that time in the problem and *can then manufacture new instructions by itself.* Thus, a measurement of the condition of a machine determines the next operation in that machine. This is feedback; this is automation; this is cybernetics; this is automatic control. Please note carefully the difference between what was first described as "Detroit automation" and what is now described. In the first instance—that is, in "Detroit automation"—machines for production, or automatic machines for handling materials, carry out under control of a fixed program a certain number of operations, automatically and without human intervention. But this second type of machine, a *stored-program automatic* computer, is able not only to carry out a sequence of operations without human intervention but by looking at a condition in memory is able to feed back information so as to *exercise a new control.* It is the feedback which is essential in automation.

The technical names for the components of automation as we are now discussing it are, first, a *program control*; second, a *communications system*; third, a sensing device to examine the new state of the *physical configuration*; and finally, the communications system which *feeds back the information* from the sensing device.

The first generally known example of automation involving these elements was the "governor" which was used to regulate the speed of the steam engine. The governor was coupled directly to a main shaft in an upright position. Attached to the upright shaft were two rods with a steel ball on the end of each rod. As the speed of revolutions of the shaft increased, centrifugal force increased, and the balls rose; but as they rose, the drag increased, and the drag slowed down the shaft, thereby decreasing the speed of rotation. One sees immediately then how control or feedback was exercised.

In the chemical industry at the present time, we do have what is known as automation. Borrowing a term from mathematics, I will call it *automation in the small.* If one is producing polyethylene in a large plant, one asks the engineers to specify, for a given kind of input, the proper temperature and the pressure at a given place in the plant. One then installs binary instruments which are such that if the temperature goes over 80° blowers are turned on, if the temperature goes below 78° heat is turned on. Feedback is involved because you make a measurement of temperature and on the basis of that measurement you process it by looking at this binary thermostat and feeding back information which says, "Turn on the blower," or "Turn on the heat." So it is automation.

Having set those controls, you go down to the end of the plant and take readings on a mass spectrometer which you can analyze every two or three hours if you have a modest automatic computer. You can then decide if the quality of the product which you are making meets your specifications or not. If it does not, you have to assemble the experts and decide what new settings should be made of the instruments. Therefore I call it *automation in the small,* because you indeed automate each section of this plant and have feedback, but you are not as yet automating it in such a way that you can get an optimum result all of the time.

In the fabrication industry, which involves a little larger problem, what you mean when you talk about an automatic business is this: You take all of the sales figures which you get from the field. You would like to make automatically all of the necessary judgments: whether you have enough inventory, whether you must make more inventory, where to order parts, in what quantity to order parts, how to schedule the machine-shop loading that you have, how to schedule the flow of materials to the line, how to schedule your labor power—including your supervisory labor power—how to schedule shipments, and how to ship the products to the field. Then you want new instructions from the field which depend upon customer reaction. That will tell you how to schedule the next batch of your shipment. You want to do all that automatically with the feedback based on customers' reactions.

Automation in the large as just described is certainly possible in principle. It is possible in the first place because engineering technology has made available to us the sensing devices, the measuring devices, and the communication devices. Engineering technology has made available to us the *electronic data processing machines.* All of the components of the fully automatic factory, the fully automatic business, are available. All that is required is to be able to tell engineers what to build.

But in order for us to tell the engineers what to build, we must produce a model for them; we must produce a description which describes in complete detail on the basis of measurements made every few millionths of a second, exactly how we should adjust the controls of a chemical plant, say, to be moving always toward the optimum production. This involves an intensification of the kind of research which is now going on in the universities throughout the world, to make a completely mathematical model out of chemistry. In order for our engineers to build a completely automatic factory which involves sales analyses, automatic transmission of information from the field and from the sales force to the factory, automatic inventory control, automatic scheduling of production, automatic scheduling of the machine shop, automatic shipment, automatic feedback on the basis of sales statistics, we must similarly give to the engineers a model of the business.

To do this demands a new sharing of intellectual interests, a new sharing of intellectual disciplines, and a new understanding by the businessman of the mathematician, by the mathematician of the businessman, and by both of them of the engineer, in order to obtain the same kind of logical models, the same kind of mathematical models, the same kind of complete and detailed descriptions of the business organism, as has been provided for us in physics on the basis of 2000 years of research. The need for this is now being recognized. In many leading graduate schools in the United States, there are being or have been established research activities looking toward such description of management as a science, and toward linking the fundamentals of business economics to the development of automation.

V

ECONOMIC ASPECTS OF AUTOMATION

1. *Automation and Labor**

The *economic* aspects of automation cannot be treated in isolation. Whether automation will do us good or harm can be evaluated only by looking at the whole social-economic complex of which it is a part. Such a large task can not be undertaken here. We are concerned here only with one phase of the general task, namely, with the problems which automation raises with regard to employment and conditions of labor.

AUTOMATION AND EMPLOYMENT

If one considers the period from 1953 to 1955, in which we are naturally much interested, one finds that increasing automation and other factors which have raised output per man hour have brought about some decline in employment and some increase in unemployment—both temporary, we hope.

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* By LEO BARNES, Chief Economist, Prentice-Hall, Inc.; author *Your Investments*.

Since 1953, we have had a little recession and now (April 1955) we are back very near the production peaks of 1953. However, owing to increasing automation, mechanization, and other forces that increase productivity, manufacturing output today is less than 2 per cent below the peak reached in 1953, but man hours worked in manufacturing are about 10 per cent under that peak. Similarly, while construction is at an all-time record high, there are 5 per cent fewer workers employed in construction than at the 1953 high.

BALANCING ECONOMIC FORCES

So automation presents real and difficult problems ahead. The goal is to keep such *labor-saving* forces as automation in balance with the *job-creating* and *unemployment reducing* forces, and to do that at approximately full employment levels. It is not an easy task, particularly in peacetime when we do not have the horrible incentive of war. In other words, if we have automation—and have it we shall—we must also have expansion of industry, expansion of jobs, industrial innovation, and so on, if we are to prevent large-scale unemployment.

Most people have heard the probably apocryphal story of Walter Reuther and Harlow Curtice of General Motors walking side by side through one of those beautiful, unpopulated plants that contain nothing but automatic machinery. Mr. Curtice, turning to Mr. Reuther said, "Well, Walter, I don't see your union around." Mr. Reuther quickly retorted, "Well, Harlow, I don't see your customers around, either."

The economist's views of the effect of growing output per man hour, of which automation is actually only a part, are well known. If efficiency rises in a plant, fewer men than before can produce the same volume of output. That can mean layoffs for part of the labor force, and higher profits for the firm. These higher profits need not remain idle, however; they may be channeled into new investments. As an alternative prices may be reduced, leaving consumers extra money to spend on other goods. Or wages may rise, with the same effect. All this produces new, previously nonexistent demands. To satisfy these demands more production workers are needed; and so a number of men, theoretically at least corresponding to the number laid off, find new jobs waiting for them.

Reality is, of course, much more complex than this simple analysis would indicate. We know that things do not always work out this way, especially in the short run. But we also know that in the long run they do work out this way, because they *have* worked out thus for the past one hundred years, albeit with some drastic interruptions.

When leaders of industry defend automation, they often compare the year 1939 with 1953. They compare the number of jobs and the number of unemployed in both years and point to the enormous growth of investment and productivity that has taken place, to show the beneficial effects of ever-growing automaticity of production. But, of course, one has to take into account also the period 1929 and 1939, and that shows quite the reverse. To avoid another depression in the future aggravated by growing automation, the labor-expanding and labor-reducing forces will have to be kept in balance. Where this does not occur automatically it will have to be done consciously, to satisfy the mandate of the American people that reasonably full employment be assured.

JOB-CREATING FORCES

What are some of the labor-consuming and job-creating forces freely at work in our economy, that can take the sting out of automation?

First, and most important, is innovation—*new* products, *new* processes, *new* services, and their more effective distribution to the consumer.

Second is expansion of *present* types of production, processes, and services, by stimulating greater demand for them. One factor that will do that automatically—with little or no effort on our part—is our *great population growth.* The population of the United States is expected to rise about 20 per cent in the next decade.

We are also continuing to increase our *total propensity to consume*—to spend our money—in various ways. Here are some of the socio-economic forces that are definitely job-creating because they stimulate the propensity to consume: the redistribution of income which has quietly been taking place in our economy, higher wages, extension of the social security system, higher unemployment benefits, the guaranteed annual wage or equivalent techniques for maintaining purchasing power, more public spending on schools, roads, and other public works.

The increasing suburbanization of our population is another contemporary factor that tends to raise the total "urge to splurge." In terms of material things, the production of which demands labor, living standards are rising faster in the suburbs than either in the cities or on the farms.

Other job-creating forces at work are more advertising and selling to get people to buy, more sales promotion that will encourage rapid obsolescence of existing models, more foreign aid, more investments in underdeveloped areas.

UNEMPLOYMENT-REDUCING FORCES

But job-creating forces alone may not be enough. Particularly if we are spared another war, we shall have to get the help of certain *unemployment-reducing* forces to make automation tolerable. Such forces include, for example, shorter weekly hours. I think we are long overdue for a reduction in working hours. Owing to World War II and the postwar boom, we have not reduced hours per week in manufacturing for many years, not since the involuntary cuts of the depression thirties.

By contrast, from 1910 to 1920 average hours in manufacturing were cut from about 51 to 47.5. By 1929 they had dropped to approximately 44. In the postwar period, however, they have stayed well above the 40-hour mark on the average. In line with the long-term downtrend before the war and with the wonders of automation and other labor-saving devices that lie ahead, it seems to me that a cut in industrial hours—with the nearby goal of a 7-hour day, 5-day week for industry—will be possible and even essential if we succeed in avoiding another war.

Another *unemployment-reducing* force that will be particularly stimulated in the years ahead is the rapid increase expected in higher and in adult education. By 1965 there will be about 55 per cent more 15- to 19-year-olds than in 1955. This enormous increase will be the result of our huge postwar "baby crop" reaching teen age in the next decade.

As a consequence college enrollments will take a fantastic jump. Even if the *proportion* of college students in this age group does not increase any further, colleges may expect a rush of almost a million freshmen by 1965, and a total of close to 4 million students. In 1954, total college attendance was 2.5 million, and the proportion of all 17- to 18-year-olds that entered college as freshmen was 14 per cent.

Another factor—less welcome, but perhaps inevitable—that may reduce the available labor supply is *continued military training.* Still another labor force reducing factor is *compulsory retirement at age sixty-five,* though this is certainly not always desirable as medicine learns to expand the life span.

OTHER EFFECTS ON LABOR

Apart from the employment effects, there are bound to be other effects of automation on labor. Automation, unlike mechanization in general, should result in *a long-run upgrading of the labor force.* We can look forward to a progressive elimination of routine and uninteresting jobs, certainly something to be valued rather than feared. More responsible and challenging jobs will be created. There will be an increase in the demand for highly skilled maintenance personnel and for a generally higher level of trained operators. This, in turn, will put a premium on education.

On the other hand, in the short run labor will no doubt run into such problems as the need to relocate, loss of seniority, and obsolescence of skills. But the inconveniences of this can be mitigated in a full employment economy.

There are also most likely to be distinct limits to the *percentage of the labor force* that *will be involved in automation.* The first place where real automation with feedback will mushroom is likely to be in all types of clerical occupations. But clerical workers as a whole comprise only about 13 per cent of the labor force. As far as industry as a whole is concerned, probably no more than 25 per cent is of the type which can lend itself to automation of production, particularly because of the large size of units required to utilize automation fully in most lines.

CONCLUSIONS

The impact of automation is in our hands. *If we guide our action by the overwhelming public determination to maintain high-level employment at all times, automation will vastly stimulate the job-creating forces.* How much of unemployment-reducing forces will also be required, in addition to the job-creating forces, depends on the social and international setting—primarily on whether we have a full-scale "garrison state" or total defense economy, or an economy in which a steadily increasing percentage of output can be devoted to peacetime goods and services.

I hope it will be the latter. If it is, I have every confidence that business and labor and, if necessary, government, will cooperate to make automation a boon to mankind such as the industrial revolution proved to be in the long run—but without the suffering which accompanied that change and without artificial limitations and restrictions on the progress of technology.

2. *The Problem of Timing**

Whether we like it or not, our physical scientists, mathematicians, and engineers are forcing us, economists and sociologists, to think ahead about the social-economic consequences of their work in automation. They are even making us talk in their language of "feedback" and "control," as if these terms can be given a social as well as a technical meaning. This is all very stimulating, but there is another side to the question of automation which the mechanical language does not exactly cover, and which is psychological and social in character.

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* By GEORGE L. RIDGEWAY, Director of Economic Research, International Business Machines Corporation.

To begin with, in anticipating the economic effects of automation we must be clear as to whether we are thinking of the short run, the medium, or the long run. Timing is important. If what we call automation were to take place gradually, then few of us would be greatly worried about the ability of the American economy to keep up with and absorb such technological advance. If, on the other hand, automation should come with a tremendous rush and all the hardware needed for it should be made available by the universities suddenly, then the problem of adjustment would be much greater.

Looking carefully at the figures of employment and at the amount of automatic change that has already taken place, we can perhaps gain some assurance in feeling that what does happen will take place at a rate which will give us in the social sciences time to devise means for dealing with the problem. The factor which will probably be most helpful in this respect will be the spirit of the American people and of the free world—the spirit of enthusiasm with which this development is being accomplished. No change—no revolution, if we choose to call it that—has ever taken place with more general and more rational attention than the movement toward automation.

It is owing to the spirit in which automation is being advanced that we need not regard it with the fear and trepidation that we might arouse in ourselves if we thought it comparable to the movement of the industrial revolution in its early days. But the picture before us today is quite different. We can look ahead to changes which can only arouse enthusiasm. Actually, if we shove the present trend lines far enough ahead—say to the 1970's—we can see before us by that time a four-day working week with a long weekend from Saturday to Monday, and average incomes up by about 20 per cent. Who would object to a four-day week, and who would object to having his wages raised? That sort of "revolution" would be all right with the American people generally.

The outlook is one that should command great enthusiasm. There is one necessary condition, however. The faster the "hardware"—the new automation equipment—is developed, the faster those working in the fields of economics, sociology, and politics must move to make possible the creative use of the new technology.

VI

NEW HORIZONS IN INVESTMENT*

The word "horizon" presupposes something far in the distance. The emphasis here, therefore, will be on the long-term future rather than on the immediate situation in securities. The topic can be divided in five parts. First, the future *economic background* for security investment; second, the *indicated long-term investment policy* that would be based on such a background; third, the *opportunities and hazards of* such a policy; fourth, the future *impact of tax considerations* on investment policies; and finally, some future developments in *stockholder-management* relations.

With regard to the future economic climate, we start with the necessary assumption that there will be no atomic war. This is about the same as saying that the heavens will not fall. But what was once a humorous cliché in our childhood has now become almost an act of faith.

The second postulate I accept more willingly and not perforce. It is that we shall have a dynamic America, with Gross National Product growing steadily through increasing productivity and supported by government commitments to maintain nearly full employment. I think there is more possibility of large-scale inflation in the future than there is of large-scale unemployment and deep depression.

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* By BENJAMIN GRAHAM, author *The Intelligent Investor.*

As a third guidepost to the future, we might use the projections of the Congressional Joint Committee on the Economic Report. These describe the economic patterns that may prevail in 1965, assuming reasonably full employment. They are, of course, not intended to be a prediction—merely an indication of potential performance, based on carefully chosen assumptions. These projections are, among other things, encouraging for corporate profit. Here are a few of the relevant figures:

The projected growth in Gross National Product from 1954 to 1965 is 47 per cent—to $535 billion. A breakdown of the components, which includes corporate profits before and after taxes, shows that *before taxes* corporate profits of $56 billion are projected for 1965, against $39.5 billion in 1953—an increase of 42 per cent. A projection of *after-tax profits* shows $30 billion in 1965 as against $18.3 billion in 1954, or a 64 per cent increase. Dividends show an increase of 90 per cent—$18 billion as against $9.4 billion. However, I shall have a caution later on the matter of the dividend factor which, if I am correct, may change that figure, or at least the way dividends are handled.

In this analysis the corporate picture as a whole shows a greater projected rate of growth than that of the other parts of the economy. The larger percentages indicate the indispensable role of capitalism and of corporate profits in furthering the expansion of the United States economy. In spite of the political weakness of American business, it has forged ahead since 1933, and I believe it will continue to do so in the future because the country needs it.

LONG-TERM INVESTMENT POLICY

What future investment policy is called for by these optimistic projections? Essentially, it is much like the policy that has been formulated by most authorities in recent years. Briefly it can be condensed into a statement that: The average representative investor will divide his funds somewhere between one-third in government bonds or tax-exempt securities and two-thirds in equity securities, at one extreme; or two-thirds in government securities or cash equivalents and one-third in equities, at the other extreme.

What the actual proportion of equity investment may be will depend on a number of individual judgments, among them expectations concerning the future inflationary potential. It is obvious that the people who failed to include common stocks in their portfolios in recent years were remiss—they did not read the signs of the times, they did not read the convincing evidence of past experience. These speak strongly for every investor's having a basic common stock component in his portfolio.

On the other hand, you can also go too far in this respect. The possibility of inflation in the future does not mean that what used to be regarded as definitely excessive levels of the stock market will no longer be excessive. I want to stress this point, though it is based more on experience than anything else. When you have security price levels which in the light of the past are high, there are always "good" reasons for them. One reason readily given as the motivation behind the present bull market, for example, is the inflation factor, and the fact of full employment threatening more inflation. But there is a danger in accepting this explanation 100 per cent, because the time comes when that factor, though it may still be just as true as it ever was, *no longer controls stock prices to the same extent that it did.* Something else comes in—namely, higher interest rates, or some temporary business setback, or some reappraisal of the situation any of which can cause a break in stock prices.

As far as common stock holdings are concerned, future investments may be viewed as starting from a typical current investment fund portfolio. Usually such a portfolio has a selection of securities such as appear in the Dow-Jones industrial list; an assortment of public utilities—which are more homogeneous than the industrial list; a relatively few leading railroads; and a fairly wide choice among banks and insurance companies to the extent that the investor wants to have that type of security in his over-all portfolio.

There are many departures from this standard pattern—there must be, since there are thousands of companies not included there, all of which have to be owned by some people. *But those departures will require special reasons—not only special reasons but a special equipment in the form of training and skill by the investor.* In order to amplify that a little, let us consider two types of departure from standard policy. On the one hand, there is the emphasis that might be placed on growth or quality stocks, which are higher-priced in relation to earnings than the typical or representative security. On the other hand, there is the emphasis on secondary or bargain issues, which are relatively low-priced. *In either event, investment in those areas should be motivated only by careful thought and adequate equipment.*

As far as the high-priced issues are concerned, I feel that as a practical matter it is dangerous for the individual investor to take the stand that if he likes Company A he should buy it regardless of its price. And since he cannot take that stand, it seems difficult to me to decide just how big a premium he should pay over normal multipliers in order to get a good company. In other words, I do not believe that the field of growth stocks, attractive as it is, is practical for the average investor to operate in continuously over the years.

However, a separate case might be made for a concentration on public utility common stocks by the average run-of-the-mill investor. It might be said that this group occupies a special position. It combines almost a guarantee of adequate stability with a satisfactory rate of growth. The rate of growth will probably not be as large as that which might be experienced in industrial issues if the selection is especially good or even perhaps only average. But the stability factor will probably be greater. One could easily justify a determination to concentrate one's equity proportion of the portfolio in the public utility field under present market conditions.

I see no justification, at least in the near-term future, for individual investors to buy corporate bonds and preferred stocks rather than United States savings bonds and tax-exempt securities. The reason is this: The higher yields that might be obtained are not sufficiently attractive to compensate either for the risk incurred—partly a true risk and partly a risk of market fluctuation—or the amount of skill that is needed in order to get the higher yield without undergoing the greater risk.

As far as *investment in foreign enterprises* is concerned, I am perhaps a bad man to discuss it, because I have been in Wall Street for forty years and the experience of investors in foreign countries in those forty years has, on the whole, been a bad one. It might be argued that it has not been so bad financially. But certainly it has been bad psychologically. I think we will nonetheless probably see growing foreign investment. But whether it will turn out to be sound, whether the investors will be happy about it in the future, is a matter for skepticism.

THE FUTURE STOCK MARKET

The third topic concerns the stock market of the future. What kind of behavior might be expected of it? Can we expect it to parallel fairly closely the performance expected from business? That would mean that it would advance fairly steadily and would experience at worst only minor setbacks.

This is a charming prospect. There is a current tendency among people in the stock market to embrace it. Personally, I do not believe in it. It is true that the general rate of growth of American business profits will undoubtedly control the future rate of growth of representative common stocks, their earnings, dividends, and prices. *But the fluctuations of the stock market will not be governed solely, or even perhaps predominantly, by the fluctuations of business.*

There is a large component of stock market fluctuations that will continue to come from the attitudes of investors and speculators, from the subjective element in stock prices. The excesses of optimism and pessimism will continue to produce all the excesses of over-valuation and under-valuation in the market to which we have been long accustomed. *The market cycle of the future may prove to be surprisingly independent of the business cycle, and it may even exist if there is no business cycle—which is in itself quite an assumption, but not an entire impossibility.* I am not yet ready to give up what has long been my favorite description of Wall Street—the more it changes, the more it is the same thing.

I would like to try to throw some light—and one or two paradoxical sidelights—on common stock price fluctuations. This subject is more interesting and more complicated than any of the problems I have covered up to now.

What we call the excessive price levels reached in bull markets are excessive primarily in the light of experience. They are not excessive by *a priori* logic or reasoning. It is easy to prove to any professor's satisfaction that dividend yields should properly be no higher than bond yields—the phenomenon that you find at the top of bull markets. You could well argue that a representative stock investor, at those prices, receives not only the same income he would get from bonds but in addition gets the benefit of reinvested earnings, a participation in the growth of the country, and a protection against inflation. And it is easy to argue therefore that if you have a good stock that yields you the same amount as a bond you have a better investment than you have in a bond.

Undoubtedly, reasoning of this kind is implicit in the recurrent willingness, not only of speculators, who may be called the heedless type, but also of conservative and experienced investors, to buy and hold stocks at the top of each successive bull market. This gospel of the "good stock," because it has a good deal of persuasiveness to it, finds ready acceptance in bull market periods.

Past experience, on the other hand, shows clearly that the "normal" or "average" price of common stocks tends to be well below this theoretical long-term value. The reason for it is easy to understand. There is an element of "insurance premium" that enters into the common stock picture. In normal times the investor insists on being paid something extra above value—above his money value—for assuming the psychological hazards of a stock program, hazards associated first with temporary market shrinkages in securities as a whole, and second with the possibility of a permanent or semipermanent loss of value in some of his individual commitments. The market pays the investor a special premium for such risk-taking—a substantial premium above the actuarial exposure to risk.

There is an interesting and close analogy here to the field of casualty and fire insurance rates. Fire insurance companies receive premiums equal to about twice their actual loss experience or exposure (exclusive of operating expenses). You pay that extra premium—the word premium itself is an interesting one, meaning really an amount paid in excess of calculated risk—to be relieved of the psychological hazards involved in having an uninsured house or automobile.

In a somewhat converse but analogous way, in normal or average markets the stock investor obtains a similar extra premium or reward for his gumption, aggressiveness, and so on, in going into stocks, as against the bond investor. *My theory is that this inherent overestimation of common stock risks will continue to be a feature of the stock market over the long pull.*

To some degree it is the consequence of the very instability of investors' thinking—the variation in investor confidence—which leads them to view the picture through rosy glasses one year and through dark glasses the next year. This truly subjective element detracts from the objective, or independent, quality of common stocks as a whole, and creates what I like to call the "built-in discount factor" in common stock prices.

There is a second paradox related to the structure of common stock prices. Under the modern attitude toward common stock valuations, the higher the quality of a company the more inescapable is the speculative component in its price and the more subject it is to wide price variations.

The value of a common stock has come to be defined and accepted as being based upon the future earnings of the business capitalized at a rate appropriate to the quality of the company. When we are dealing with a strong company we are dealing with one in which there is the greatest confidence as to both the growth and the stability of its future earnings. Hence the willingness exists to capitalize these earnings on an extremely liberal basis.

But both of these judgments are essentially subjective. There is no way in which anyone can tell precisely what those future earnings are going to be. Much less can you tell precisely what the correct capitalization rate is to apply to such earnings.

My own method for finding a "normal multiplier" is to take a group of securities like the Dow-Jones Industrials as a whole, which is a better than average group of stocks but does not consist of only the best. A multiplier about equivalent to twice the long-term interest rate on high-grade bonds would yield a pretty good idea of the normal value of this group. That multiplier should be applied to ten-year average earnings rather than to single-year earnings, which cannot be accepted as the basis for sound valuation. This procedure would currently yield multipliers of between sixteen and seventeen for the Dow-Jones group.

One might say that securities of a better quality than this list as a whole would be entitled to a higher rate. But I have found from experience that when you get beyond a multiplier of twenty you are definitely moving over into the subjective or speculative area. You are beginning to rely a good deal on what investors are likely to think of your stock in the future. Conversely, of course, companies of poorer quality than the Dow-Jones list may be expected to have lower multipliers, going down to as low as ten or eight.

You can also value good stocks not by taking past earnings and applying a high multiplier, but by taking estimated future earnings which are high and using a normal multiplier. The way the stock market often does it is to estimate high future earnings and use a high multiplier in addition. There is then a tendency to count the same trick twice. As a result the larger part of the price of high-grade companies may reflect merely the subjective views of the investors, and the degree of confidence that they have at the moment in the future of these companies. That is the characteristic which is inescapably subject to a wide degree of variation. The psychological mood of people changes more drastically than anything else in finance. Human nature changes least of all. So what you have is a combination of great fluctuations in the mood of investors and practically no change at all in their essential characteristics. That is the "built-in destabilizer" of the stock market—the factor that can make for market fluctuations irrespective of over-all economic stability.

Let me add a word as to the role of mutual funds in this picture. I think that on the whole they will be a strengthening rather than a weakening element in the future, in comparison, at least, with the ownership of the same securities by individuals. The easiest way to discuss this is to compare the typical public owner of a mutual fund security with himself as the direct owner of the securities in the fund's portfolio. I think he is much more likely to sacrifice his direct security and act unwisely in relation to it than he is to act unwisely in relation to his mutual funds. And there are reasons for it—especially because it is much easier to be frightened about one security that you own than it is to be frightened about a hundred.

IMPACT OF TAX POLICIES

We must turn now to a discussion of the impact of tax considerations on investment policies and corporate policies in the future. One of my primary reasons for cautioning against thinking that the stock market will be stable in the future because it looks as if the business scene will be stable is the inexcusably slow reaction of both investors and corporate managements to the impact of tax developments over the past twenty years or more. If it is going to take more than thirty years for investors to realize what the new tax structure actually means for investment and corporate policies, it might take another thirty years, or fifty years, for them to realize that common stocks are really as good as we may feel they have already proved they are. We have to allow in our thinking for that long a time lag.

We are just beginning to realize that the basic 52 per cent corporate tax rate, plus individual tax rates reaching 50 per cent on a taxable income of $18,000 for single individuals, require rethinking both as to corporate financial policy and investors' attitudes, in comparison with the habits of 1925 or 1900.

Business is now developing some ways of escaping—legitimately, of course—the double tax on corporate earnings. To a small extent this escape may come from statutory relief such as under the 1954 tax bill, which received so much attention. That was a minor amount of statutory relief. Yet it has already generated considerable political reaction against it, and it seems to me that not a great deal can be expected in that area.

To a much greater extent, I believe, this escape will develop out of a change in corporate and investor policies—a change which will not be interfered with by Congress or by the Treasury because Washington has a bad conscience on this matter of double taxation of corporate profits.

If either the corporate impost or the individual impost on earnings can be saved, the net result is typically a doubling of the effective income of the present stockholder. That is an important objective, and I believe that the inducement is so great that the people in Wall Street will be moved finally to do the correct things instead of the foolish things in corporate policy, in spite of their laziness in thinking and acting.

This escape will take one of two forms: either escaping the *corporate tax* on some of the earnings, or escaping the *individual tax* on those earnings. The saving in corporate taxes will be effected by the substitution of debt—primarily income debt—for preferred stocks and for guaranteed or preferred securities; and to some extent by the substitution of a certain degree of debt for common stocks in present all-common-stock capitalization structures.

Corporations have been accustomed to use preferred stocks in place of income bonds because preferred stocks were not a contractual obligation for either interest or principal, and bonds were. It seemed to be, and of course it was, more prudent for corporations to issue preferred stocks if they could sell them at reasonable prices. There is now a penalty on this which did not exist thirty years ago, in that it costs the corporation twice as much for its money when it sells preferred stock as when it sells a bond with the same coupon and the same interest rate.

It is interesting to note, first, that most bonds carry lower interest rates than preferred stock, so that the actual ratio is even higher than two to one in cost. Second, the income bond that has been developed now virtually relieves the corporation from any important or serious obligation that is heavier than exists in a good preferred stock, because the interest has to be paid only if earned, the principal is due many years hence, and the income tax saving itself can be used to pay off the principal, so that by the time the maturity arrives you have nothing to pay off. The tax saving on an income bond, if substituted for a preferred stock, will, if used as a sinking fund, retire the entire principal amount of the security within about a 22-year period in a typical case.

This combination of factors has great advantages for a corporation. For the individual investor there are advantages too. He, of course, tends to have a somewhat better security in a typical income bond than in a typical preferred stock of the same kind of corporation. That does not mean that a preferred stock of a strong corporation is not as good as an income bond of a bad one. But in the same situation, the income bond is somewhat better because there is more assurance of regularity of interest payment, even though the corporation may not absolutely have to pay it. And eventually I think you will see that income bonds will be appraised in terms of the actual financial position of the corporation issuing them instead of in terms of the prejudice against the income bond as a vehicle itself or as a form of security. The individual pays no higher tax on income bond interest than he does on preferred stock—except for the small credit allowed in the 1954 law—and the differences in yield are a minor matter as it now stands. Corporations, of course, have a greater tax advantage in owning preferred stocks as against owning income bonds, but there are not many corporate owners of importance of preferred stocks.

The substitution of income debt for preferred stock (and of other debt for guaranteed stock), is already in full swing in the railroad field. One of the astonishing things is the rapidity with which railroads have been substituting income bonds for preferred stock in the last year or two. I have had some personal contact with it because I am a director of the Western Pacific Railroad, the first railroad to retire its preferred stock and issue income bonds in place of it. I foresee the fairly rapid extension of this development to non-railroad companies. But it will require the abandonment by investors of their prejudice against income bonds, which they have generally felt are inferior in quality to preferred stock—a prejudice which grew out of the fortuitous circumstance that in the past income bonds were mainly the product of railroad reorganizations and therefore a product of financial troubles of the companies involved.

The other avenue of escape from double taxation for individuals is via the acceptance of stock dividends (or even no dividends) in place of cash dividends. In the dynamic parts of our corporate economy, notably in the public utilities field, the present practice of paying cash dividends and then taking the same money back from the same people through the sale of new common stock is really an ingenious device for paying double taxes without any necessity or real excuse. Large-scale corporate expansion is an essential ingredient in any future prosperity and employment, and consequently many corporations will need, in the future as they have in recent years, to continue to increase their equity capital regularly. I am sure that before too long they will devise practical and painless measures for substituting periodic stock dividends or perhaps some other device for the customary but irrational practice of paying cash dividends subject to personal income tax, and then selling the equivalent amount of stock to the same people as get the dividends.

In the past investors had a large preference for dividends, especially as compared with undistributed earnings. My studies show that the ratio has been as high as four to one for the value of a dollar of distributed earnings against undistributed earnings. But I think that is changing. It may change rapidly, and this development will be aided by the device of the periodic stock dividend, which is a convenient way of letting the stockholder eat his cake and letting the corporation have it too. This device, when its practical merits are understood, should eventually reach the stage where the stock dividend will be accepted as fully equal to a cash dividend.

To understand this point better, let us take public utility common stockholders as a whole. It should be obvious that they do not buy their stocks for income. While they may think they buy them for income, they do not do so in actual fact—that is, for income to live on—because practically all the utilities are constantly offering additional stock to their stockholders, who are using their money—their dividend money diminished by taxes—to buy the additional shares. The greater proportion of stockholders are doing that. In the case of Pacific Gas & Electric, for example, about 60 per cent of their stockholders actually exercise these recurrent rights. That really means that these stockholders have to put up twice as much money or more for the new stock than they are getting in dividends. There are a number of individual cases, of course, where people do need dividend income for living purposes. But I think that if anyone took a census he would be surprised at how few there are in relation to the total. These people could easily get the equivalent of their cash income, of course, by selling their stock dividends currently, and not only would they get the same income but they would have to pay a small tax indeed on the proceeds as against paying a larger tax on an equivalent amount of dividends.

As a sidelight on this issue, I might mention the recent successful sale of stock issues in Canadian investment funds, where the investor is told that he will not receive any dividends at all. Yet he is happy to buy on that basis, because all his profits will eventually be realized in the form of capital gains subject to a much lower tax. The amusing thing about it is that it all depends on the language used to sell and the consequent attitude of the investors. If another company came along and said, "I have good news for you stockholders—we're not going to pay you dividends any more," the reaction would be completely different.

There is an additional important factor in the business picture, in part related to the tax situation but mainly to other considerations. In the past few years new capital spending has been well pegged at the figure of some $25 to $28 billion annually, which is about five times the 1939, or pre-World War II, level. This is beginning to have a consequence in the corporate field and in the field of investment security values which some of us foresaw a number of years ago and were surprised to see so long delayed. That is a tendency, developing apace, for profitable, prosperous, expanding companies to acquire smaller and less profitable ones as a partial substitute for the construction of new facilities and other types of expansion. Most of these acquisitions have been possible at a price far below the present construction costs of new fixed assets. In addition to acquiring the assets themselves, not perhaps of an ideal character but nevertheless usable, at a low cost, the acquiring corporation obtains an established sales volume, experienced personnel, and other advantages.

This trend is important for the more sophisticated investors to watch. It represents, in effect, a partial offset to the contrary tendency for profitable companies to sell at increasing premiums in the stock market, while the less profitable companies tend to sell at increasing discounts—I refer to premiums or discounts from book value or from any other established norm of value.

To an important degree the tax factor also enters into this picture of corporate acquisitions. Not only the operating losses of the past but even losses in going-concern value as against cost or other income-tax base values may be recouped to the extent of about 50 per cent by various types of permissible interbusiness deals. This factor tends to mitigate to some extent the shrinkage in value of unprofitable businesses. The fact is that, in theory, any corporation which started out with X dollars of value and now has only 60 per cent in going-concern value can, in one form or another, recoup one-half of that loss through the proper arrangement with other corporations. That is theoretical, but it has a number of practical implications which the experienced investor should watch carefully.

CHANGES IN STOCKHOLDER-MANAGEMENT RELATIONS

The final point is related directly to the subject of nonprosperous businesses. I see on the investment horizon a slow development of a common-sense attitude in the field of management-stockholder relations. The present flurry of proxy battles and endeavors to capture control of businesses is an indication of something approaching a stockholders' revolution. The issues are confused by personal factors and personal attacks of all sorts, but at the bottom they are simple. Stockholders have a right to ask for efficient management and for successful results within the limits imposed by the economics of their industry. If the results are not satisfactory, the least the management can do is to show convincingly that it is aware of the fact, and that it is making every effort to remedy the situation.

As I see the future—and this is a jump to far horizons—we shall gradually develop some simple and workable criteria to determine whether or not a company is being properly run, and then certain standard procedures for remedying the situation where it needs to be remedied. For countless years past it has been customary for the disgusted stockholders of a badly managed company to part with their shares. In the future the stockholders of such a company may decide instead to part with their management.

To sum up: Barring atomic war, I see a generally favorable future for long-term investment, particularly investment in common stocks, which is now about the only interesting part of the whole field. My one unfavorable prognosis is that we shall continue to have bull and bear markets in the future as in the past, and that for every 10 per cent of over-valuation in bull markets we are still likely, as before, to see a corresponding 10 per cent of under-valuation in the succeeding decline. I predict a gradual but decisive change in corporate practices and in investment policies, to adapt both of them to the realities of our tax structure. I foresee also an important movement in the direction of a more effective check by stockholders on the stewardship of corporate management.

VII

NEW HORIZONS IN BUSINESS RESEARCH*

It is apparent to even the most casual reader of the business press that over the past decade the field of business research has grown at an astonishing rate. To put it in historical perspective, this multiplication of business research effort since the end of World War II, and more particularly in recent years, reflects a number of influences.

First, the need imposed by World War II for redirecting and controlling the total output of a vast industrial machine stimulated the Federal government to start amassing and organizing business and economic data on a scale previously unknown. Second, in the postwar years government-business relationships grew more complex. Third, under the Employment Act of 1946 responsibility for avoiding major recessions was explicitly assumed by the Federal government after the end of the war. All these forces have acted to sustain the pace of government research ever since.

For some time after the war was over business interest in research lagged. This reflected in good part the failure of initial postwar forecasts. This loss of interest, combined with unprecedented levels of prosperity and investment opportunities, acted to retard the growth of business research in the business sector itself. More recently, however, we have encountered increasingly competitive markets both at home and abroad, and the evident rebirth of the American business cycle. This, combined with the immense statistical resources now available to business researchers, has produced a sudden and rapid growth of interest in the field of research and its application on the part of business management itself. The business economist and the market analyst have now taken their place in the framework of American private enterprise. The place is an increasingly important and respected one, and no doubt a permanent one.

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* By MARTIN R. GAINSBRUGH, Chief Economist, National Industrial Conference Board.

These, then—the growth of government activity and the increasing complexity of business—are the reasons for the growth of business research activities in recent years. They underlie the recognition now accorded business research as an arm of private enterprise.

It is my strong impression, however, that the *opportunities* for profitable research, both with respect to the business firm itself and to the economic environment in which the firm operates, are now expanding at a rate considerably faster than the research effort itself. It is thus important that the effort be enlarged and intensified to catch up with the opportunities. More research is needed to keep pace with the trends and problems outlined in preceding chapters, and to make possible full and integrated utilization of the potentials of the American economy.

Many opportunities for profitable research now lie substantially in the field of development of better statistics (particularly flash reports such as those for retail trade). There is need of new data. These are areas where the government is clearly the logical agent for performing the research. Much of the opportunity for growth lies in the area of imaginative, objective attack on some of the great problems of economic and business theory, putting to use new data treated in the light of a new and fuller understanding of postwar business conditions. In this area the universities, such as The New School for Social Research, and the great nonprofit research institutions, such as the National Bureau for Economic Research and the National Industrial Conference Board, are ideal agents to carry on the research effort.

The business firm itself can do much. It has gained increasing experience with a whole range of postwar phenomena—rapidly rising productivity, labor's insistent search for greater security, diversification, automation, and the now almost incredibly swift pace from experiment to investment to mass market. These, to name only a few, are the new horizons opening up for the business research effort. At the same time they have made business planning and business control more essential than ever.

The needs and potentialities for increased business research effort may be divided into five areas: the investment sector, the consumption sector, the government sector, the field of internal business controls, and the analysis and forecasting of the trend of business conditions.

RESEARCH IN THE INVESTMENT SECTOR

THE LONGER RUN AS CONTROLLING FACTOR IN INVESTMENT

A new dimension in the investment decisions of business firms is beginning to emerge today. The early type of investment decision was limited by immediate considerations and short-run prospects. This is giving way increasingly to decisions arrived at in the light of broader perspectives—of technological progress, economic growth, and social improvement in standards of living. As the conception of a dynamic economic society catches hold within the business community, investment decisions must become more geared to the long-run economic outlook. That leads almost inevitably to a new and dynamic conception of capital stock, to a recasting of depreciation policy and replacement policy, and to an intensified search for regularizing business investment.

The fact is that research in science and technology has evidently placed us at the threshold of a new electronic revolution —a revolution that makes it imperative for us to explore the probable dimensions of the economy of the future. The Paley Commission inquiry into America's resources and the potential demand for them, the Congressional Joint Committee's report on "Potential Economic Growth of the United States During the Next Decade," the general models of McGraw-Hill and the National Planning Association, and the special models developed by many large companies, all direct attention to long-term trends in economic growth. Such economic projections, crude as they are, can and must play an important role in determining the course of investment activity. In their very emphasis upon future trends divorced from cyclical fluctuations, they encourage business firms to direct investment toward longer-run goals. No substantial business enterprise can any longer afford to neglect them.

These developments are part of a broad canvas. Behind them, and a vital corollary of them, is the business research that is reshaping depreciation and replacement policy throughout American industry. The studies of George Terborgh at the

Machinery & Allied Products Institute have emphasized the "new look" that is required in considering the character of the business stock of plant and equipment. There is now increasing recognition that capital goods compete not only with contemporary capital installations but with oncoming generations of capital. This calls for a re-thinking of corporate depreciation policy—something already recognized in the 1954 tax revisions.

In much the same way, research into and a better understanding of the basic determinants of replacement policy are already sharpening the tools of decision making. At the Rand Corporation, experiments in quantifying elements essential to military decisions have been applied successfully to investment decisions.[1] The results are techniques for focusing business decisions on the key factors controlling investment policies. High-speed electronic computers have extended our ability to cope with the interrelated variables involved, making it possible to treat all relevant aspects of inventory investment, as well as investment in capital goods.

ESTIMATING CAPACITY REQUIREMENTS

The development of interindustry, input-output relationships, establishing production-consumption patterns and capital coefficients, is yet another area of business research that promises greater regularity of business investment, over time and between industrial sectors. Here again, rapid strides in computational techniques and equipment have extended the potential applications. While final answers to questions of capacity requirements may be a long way off, research into input-output relations is pointing strongly toward the possibility of more rational and

[1] Armen A. Alchian, *Economic Replacement Policy.*

integrated business expansion than has characterized our previous economic history.

THE CONSUMER SECTOR

In terms of basic research the consumer sector, which represents two-thirds of the Gross National Product, has not received the attention that might have been expected on the basis of its numerical size. In fact, it has been rather neglected. The main reason for the relative lack of interest in the sector is the heritage of the Keynesian formulation of the "consumption function," which placed consumer behavior in a passive role. But in *the postwar period we have learned that consumption is not a* submissive variable. In fact, in the light of postwar developments it appears to lie at the vital center of economic fluctuations and of longer-term economic growth. Increasing our ability to sell more and better is a prerequisite to future business health.

DEFINING NEW CONSUMPTION PATTERNS

One apparent area for further consumer research lies in analyzing and quantifying the strikingly new patterns of consumption which have emerged in the postwar period. How do they differ from past experience? Why the difference? Why, for example, do clothing outlays now take a smaller share of the consumer dollar than in the twenties?

In analyzing the postwar changes in the composition of consumer spending, attention must be paid to social phenomena other than dollar incomes and expenditures. For example, the marked postwar trek to the suburbs represents a new element in consumer markets. We must understand better than we do today what role this migration has played in the changing pattern of consumption.

Another feature of postwar consumption patterns which is truly a new horizon is the increase in leisure time available to the mass of people. The increase in leisure has already been reflected in the sensational growth of the "do-it-yourself" market. In the form of vacations with pay, it has also had an obvious effect on vacation spending; for example, witness the growing number of people going abroad in recent years. How much more leisure time will we have? How will it be spent? Will we continue to take a large part of our gains from higher productivity in the form of leisure?

EFFECTS OF PRICE AND INCOME CHANGES

Equally important, and basic to our understanding of consumer behavior, are the determinants of price and income changes and the ways in which they affect individual consumer demand for goods and services. Here we have little to show. Nowhere do we have studies comparable to the work being done by Richard Stone in England in the separation of the price and quantity aspects of specific expenditures. With such apparatus, together with historical data on income-demand changes, we should study the interrelationships of price, quantity, and income change throughout the personal consumption field. Such studies are essential for a better understanding of consumer markets.

These time-series studies utilizing historical data should be integrated with cross-section studies of consumer spending by size of income; both are essential to a fuller understanding of how, where, and when to sell. How movements up and down the income scale affect consumer purchasing is one of the fundamental aspects of consumption analysis. Yet in 1955 we still do not know how types of consumer spending are distributed by size of income (though we look forward to the results of studies now being conducted at the Wharton School of Finance under a grant from the Ford Foundation).

WHY CONSUMERS SPEND AND SAVE

Another opportunity for research in the consumer sector concerns the relationship of saving and income. We need to understand more fully the motives underlying consumer saving, and how such saving is related to other economic factors. Will consumer saving increase as real incomes continue to rise? How does the dramatic rise of pension and welfare funds affect saving? How will the growing pressure for some form of guaranteed annual wage affect saving? The work on savings of Raymond Goldsmith of the National Bureau of Economic Research, recently published, provides a storehouse of information on saving in which we can work for many years.

CONSUMER BALANCE SHEETS

A significant research horizon, the barest outlines of which are now visible, is the consumer balance sheet. Through the Federal Reserve's survey of consumer finances we are beginning to get some notion of how the assets, liabilities, and net worth of consumers are tied into their income flows and their spending decisions. We have to devote much more effort to the effect of income flows on assets and liabilities, and vice versa. In so doing, we may well uncover and plug up large gaps in our understanding of the saving-income ratio and the role of consumer debt.

CONSUMER PSYCHOLOGY

The growing awareness of the importance of consumer psychology in forming the aggregate behavior of the personal sector represents another area of potentially profitable research. There *still remains much to be done in determining* how changes in consumer psychology are dependent on, or independent of, marketing devices and changes in economic variables.

It need hardly be added that for business the rewards for increasing our understanding of personal consumption will take the tangible form of greatly increased efficiency in marketing and production planning.

THE GOVERNMENT SECTOR

In these times of $60- and $65-billion Federal budgets, which are raising all government spending (including that of state and local governments) to near the $100-billion mark, I need take little time to sketch the significance of public outlays and to emphasize the need for their wise management. We have only to look back, for example, to the 1953-54 recession for evidence of the pervasive influences of changes in the rate of government spending upon incomes and employment, and upon business inventory policy. Despite its gargantuan role in our daily affairs—currently one-fifth of all goods and services is preempted by this single sector—our foreknowledge of government demand falls far short of being adequate; and government itself needs to know more about how and when to spend or save more effectively.

ASSESSING INFLATIONARY OR DEFLATIONARY IMPACT OF GOVERNMENT SPENDING

At the summit—on the aggregate level—we have each year, in the annual budget message and in local government reports, evidence of whether the principal influence emanating from government should be inflationary, deflationary, or neutral. We have to learn to use the evidence better. The four types of budgets in general analytical use—administrative, cash, investment-operating, and income-and-product account—all shed light on phases of the outlook, and often provide probable magnitudes to replace some of the future's many unknowns. By their nature, however, these data summarize many possibly diverging or opposing tendencies. The prospect they disclose is filled in with broad strokes. The detail necessary for close or specific application to other sectors of the economy is hardly abundant. Usually, moreover, such data are clearly first approximations, to be handled with care. As by-products of our public budgeting process they normally rest upon assumptions made twelve to eighteen months before the beginning of the year to which they pertain. They cannot, of course, foresee the modifying action that legislatures will take, nor the many changing circumstances which strongly influence the demand for and level of public activity, particularly of the many "open-end" budget programs.

OBJECTIVES OF GOVERNMENT SPENDING

As a by-product of our budgeting process, too, our current knowledge on public spending has other limitations for research use. The classifications, categories, and types of figures we have are governed, in the first instance, by need for expenditure control, review, and legislative examination. We have admittedly progressed far in the few years since the time when the basic accounting and bookkeeping systems were structured to produce data on persons employed, their salaries, etc., and emphasized accountability and control of funds, with virtually no regard for purposes, functions, or objectives. Today's "program budgets" mark progress of more useful knowledge—toward a set of accounts more adaptable to business use.

But in their usual summarized form they still reveal too little of the detail so necessary for more exact computations or fuller interpretation. The published summaries we have actually represent the apex of a statistical pyramid. By far the largest portion lies unseen beneath the surface, within the various agencies and departments, the Budget Bureau, and the Congressional committees. For reasons of internal management, policy, and in some instances, security, the great bulk of such records is now available for outside use only with considerable effort and inconvenience. Consistent with official requirements, though, much additional data could readily be produced to aid in extending many frontiers in our knowledge of this $75-100 billion market.

IMPACT OF GOVERNMENT ON INDIVIDUAL ECONOMIC SECTORS

Our broadest need of all is for better economic and statistical tools to translate government demand itself into its effects upon the other sectors of the economy and, within them, upon their sub-sectors. We need far more detailed analysis, for example, of the effects of government plans and outlays upon private fixed investment, upon inventories (including stockpiles), and upon employment. This is important for weighing the role of government activities in themselves, for assessing their probable impact upon private activity, and as a method of anticyclical policy. In both directions decisions made in government affect the levels of national income and output, as well as the distribution of that income (through disbursing, as well as taxing income) and the allocation of resources between competing uses.

Changes in public spending may also bring with them the familiar effects of a chain of successive economic reactions known as the "multiplier," but our knowledge of the relationship between public and induced private spending and the magnitude of this relationship is still more theoretical than statistical. In only rare cases can their private effects now be foreseen with any sort of precision. Even then, as in the case of the currently proposed step-up in highway outlays, only the first round of effects can be seen in rough outline; the size and timing of the total consequence still lie beyond our known horizon.

In addition to this need for greater "program" knowledge, our horizon should be broadened by more detailed analysis of public outlays from other approaches. Total outlays can be roughly divided into those purchasing factors of production or their products, and those merely transferring funds. For both we know but the roughest of totals, with little detail of what factors and how many of them are appropriated for the public service, or how the allocation of funds through transfer payments affects resource use, demand, and output. Our present data and such past efforts as the construction of the Nation's Economic Budget, or the classification of Federal payments by type of recipient and transaction such as appeared in the 1950 Economic Report of the President, afford only broad approximations of the ideal.

BETTER KNOWLEDGE OF GOVERNMENT COMMITMENTS

For many purposes, further study and analysis of public spending, according to the recipient of benefits and according to their geographic distribution, would be exceedingly useful. A similar current and continuing need exists for more intensive knowledge of the nature and implications of existing backlogs of appropriated funds, authorized projects, and work in progress, as well as of the many *future commitments,* legal, intangible, open-end, and even moral, already undertaken by government. A close corollary here is the pressing need, particularly on the state and local level, for coordinated and intensive study of demands upon government which can be expected to make themselves felt in the future—demands stemming from population growth, rising living standards, new technology, and progress—in housing, transportation, education, utilities, and a host of other areas. Prudent management of our public affairs requires our best efforts to foresee our common needs and to avoid recurring crises in the supply of services traditionally furnished by government.

"HIDDEN" GOVERNMENT OBLIGATIONS

Through war, emergency, and the onrush of changing needs, government in recent years has expanded its functions greatly in a direction which, for want of a better descriptive phrase, we might call "non-budgetary." In areas not covered by our regular public budgets, or whose activities are only partly reflected therein, government affairs have outdistanced our current knowledge and understanding. In some cases we may be but dimly aware of them. This is true particularly in the financial area, in a multitude of new financial aids—insurance programs, guarantees, subsidized interest rates, and direct subsidies—to which many areas of our economy have long since adapted their activities.

The *vast expansion of commercial- and industrial-type activities* of government, especially on the Federal level, is a similar development. Both financial and business types of activities, where they enter into our present public accounts, often appear only on a *net basis which fails to reveal the total volume* of their operations, the investment of public funds, or the commitments they have made for the future. The vast increase in housing and other public guarantees, and the staggering future liability of our present welfare programs, are two of the many areas in which our present horizons are far too limited.

TAX POLICIES

More than passing reference ought also be made to the other all-important side of government budgets. The separate treatment we traditionally have accorded taxes in the budgeting process often leads us to ignore their close relationship to expenditure policies and effects. While our research efforts of the past have probably emphasized taxes more than expenditures, our knowledge of many vital questions involved in tax policy is still limited. The economic effects and impact of broad tax policies and the probable effects of changes in them are still only a series of well reasoned, and in some cases not so well reasoned, generalities. We often can cite little in the way of chapter and verse for specific taxes or taxpayers. Such penetrating questions as the effects of taxes upon business and consumer decisions, or of final tax incidence, still stand in need of firm, verifiable answers.

INTERNAL BUSINESS CONTROLS

Research in internal business control can be divided conveniently into two parts: that having to do with cash receivables and other liquid assets, and that having to do with the use of inventories.

OPTIMUM USE OF CASH RESOURCES

Cash is an asset that is essential to the operation of any business. But like many good things, it can be harmful if excessive. Just what is excessive is a question that is difficult to answer, but an answer must always be sought.

The problem currently takes on new dimensions because of the changed financial status of business. War finances resulted in the accumulation of large amounts of cash and readily marketable securities by business, more than appears to be needed for the conduct of day-to-day business.

As an illustration, let us contrast the position of manufacturing corporations in 1926-29 and now. The earlier period is generally looked upon as a period of high business activity not affected by war. The later period is also one of high business activity in which defense expenditures were important but not dominant.

Back in the gay twenties, cash and government securities came to just short of 9 per cent of sales. (For convenience I am taking sales as a measure of the amount of work that has to be performed by cash and marketable securities. This is not strictly true, but the differences between sales and payments are not usually great and consequently one can be accepted in place of the other.)

In the years from 1951 through 1954, the same liquid assets amounted to slightly more than 11 per cent of sales. Furthermore, most of the difference between the two periods is accounted for by the rise in marketable securities—a fact which would suggest, at least at first, that the increase in cash and marketables is truly an increase in surplus liquid assets.

This is all the more true if we accept the thesis that business is more integrated today than it was back in the late twenties. The process of integration (particularly vertical integration) should reduce the need for the liquid assets that constitute means of payment. Transactions that previously were a purchase and sale between two businesses (requiring cash) become transfers between plants of the same company.

But if the corporation does not take advantage of the lessened need by reducing its liquid asset holdings, vertical integration makes it appear that the same amount of cash is superfluous. Sales that formerly were counted as part of the total are now eliminated. Consequently the cash-to-sales ratio would jump up.

But another fact must be considered before it can be asserted that liquid assets today are in excess of needs. The corporate income tax is not what it used to be. The large holdings of

United States government securities may be simply a reaction to that fact.

If taxes were paid from day to day as other costs are, there would be no need to set up reserves in the form of government obligations to cover tax payments on a quarterly or semiannual basis. As a result, cash holdings would probably be smaller. But the accrual and payment on a periodic basis results in corporations accumulating liquid assets to pay off an obligation not due currently.

The answer can only be obtained through research on the adequacy of current cash holdings in relation to the payments that have to be made by business in the environment in which it operates.

BETTER CONTROL OF INVENTORIES

Too heavy an investment in inventories can bring on financial collapse. This is particularly true for items whose prices are volatile. On the other hand, a business must have on hand sufficient stock to meet the normal needs of its customers and sufficient raw materials to keep its own productive plant running smoothly in the event there is a delay in raw-material inflows. Thus every business functions on two sides of the market as regards inventories—as a buyer and as a seller.

The problem comes down to striking a balance between high costs and increased vulnerability on the one hand, and profitability and sufficient stock to maintain sales and production flowing smoothly in the case of unforeseen events on the other.

But how does a company strike this balance? The answer is through research. One profitable line of research (upon which the National Industrial Conference Board is already at work) is tracing through the flow of goods from level to level in relation to inventories held at each level of production and distribution.

The demand for a manufacturer's product can be said to consist of two parts: that which the succeeding level of production and distribution needs to carry out its immediate production and sales goals; and that which succeeding levels may desire as additions to their inventory. The same story can be repeated for the next level and the next until the product comes to rest in some form in the hands of the final user.

Some businesses have already recognized the usefulness of such analysis, and have made attempts to trace the flow of their products once they have left their hands. But currently adequate statistics are lacking to do an effective job. What is needed, primarily, is finer breakdowns of product statistics at each level of production and distribution.

This type of analysis has some limitations. Generally it can be applied only where the item manufactured forms a substantial part of the product at each succeeding level; for example, the tracing of hides into leather and then into shoes. It does not seem likely that the method can be useful where the component is only a negligible proportion of the finished product; for example, the amount of thread used to bind books.

On the other hand, the technique can be useful to suppliers who are not in the main stream of production and distribution of the particular product. Manufacturers of containers, boxes, labels, etc., might be able to benefit, since their output may be so closely tied in with the product analyzed.

CUTTING BUSINESS COSTS

Another area in which research appears to promise considerable and surprising rewards is in cutting costs. As an example, take the case of a company possessing several warehouses spread widely over the country from which it might fill customers' orders. Further, the company may have several plants which supply the warehouses. Storage costs differ from warehouse to warehouse and production costs differ from plant to plant. Transportation costs also differ from plant to warehouse and from warehouse to customer. The question becomes one of finding the lowest combination of costs to fill a customer's order. Below is a description of one company's experience in the use of research to lower costs.

> One of the most important advantages gained by the N. J. Heinz Company from the introduction of linear programing was relief of the senior members of the distribution department from the burden of preparing shipping programs. Previously the quarterly preparation of the program took a substantial amount of their time; now they pay only as much attention to this problem as they believe necessary to keep the feel of the situation, while the detailed development of the program has been handed over to clerks. Freed from the burden of working out what is after all only glorified arithmetic, they have much more time to devote to matters which really require their experience and judgment.
>
> An equally important gain, in the opinion of these officials themselves, is the peace of mind which results from being sure that the program is the lowest-cost program possible.
>
> The direct dollars-and-cents saving in the company's freight bill was large enough by itself to make the use of this technique very much worth while. The first shipping program produced by linear programing gave a projected semiannual freight cost several thousand dollars less than did a program prepared by the company's previous methods, and this comparison is far from giving a full measure of the actual savings to be anticipated.[2]

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[2] Alexander Henderson and Robert Schlaifer, "Mathematical Programing: Better Information for Better Decision Making," *Harvard Business Review*, May-June 1954, p. 78.

IMPROVING INTERNAL CONTROL

In all of these areas of internal control, businesses need better coverage of the financial experience of their industries, and better economic accounting. Thus the FTC and SEC, through their current quarterly reports, already supply useful information on operating and financial ratios for major industry groups; so, too, does the Dun & Bradstreet annual series covering retail, wholesale, and manufacturing lines. But greater detail on the economics of operations is sorely needed to provide "yardsticks" for internal control. A prototype was provided in the "Industrial Corporation Reports" prepared by the FTC for the years 1939 and 1940. Old as the figures are, they are still being cited as unique economic data on comparative expenditures for research, distribution costs, advertising, and related detail for a wide range of industries and sub-industries. Unfortunately, the job has never been redone, much less kept current. Such data are urgently needed if internal controls are to do a better job.

FORECASTING BUSINESS TRENDS

We turn last to the expanding opportunities for research on the subject of the business cycle and the trend of current business conditions. Much of the research effort suggested under individual sector headings, of course, applies equally to the problem of forecasting business conditions. However, after ten years of postwar history, years of relatively rapid enlargement of our statistical resources, we are now in a uniquely favorable

FEDERAL TRADE COMMISSION INDUSTRIAL CORPORATION REPORTS – 1940

Summary of Operating Rations or Cents per Dollar of Sales for 28 Industries

(An Abridgement of the Original Report, which Covered 86 Industries)

Industry	*Advertising Expense*	*Selling and Delivery Expense*	*Direct Material*	*Direct Labor*	*Other Labor*	*Depreciation*	*Repairs and Maintenance*	*Other Costs and Finished Goods*	*Corporate Taxes*	*Social Security and Pension Fund Payments*	*Research and Development Expense*	*Administrative and General Office Expense*	*Uncollectible Accounts*
Asbestos and abrasives	1.59	12.20	28.91	11.14	8.87	2.16	2.61	10.33	0.97	1.13	0.79	4.53	0.16
Bread and bakery products	2.63	24.24	38.84	12.96	(1/)	2.12	1.55	6.70	1.15	1.20	0.01	3.36	0.06
Cane sugar	0.17	4.62	77.64	3.88	1.92	1.46	1.27	3.80	1.08	0.38	0.01	1.75	0.07
Cement	0.87	8.53	18.84	11.78	3.81	8.84	7.14	14.15	2.44	0.95	0.22	4.57	0.18
Chemicals (industrial)	0.89	6.10	27.83	12.87	(1/)	5.25	3.40	15.40	1.41	1.07	1.16	3.87	0.11
Cigarettes	11.3	4.6	47.2	6.1	1.5	0.9	0.6	1.7	1.2	0.6	—	1.4	0.1
Copper (primary) smelting, refining	0.16	1.36	19.99	18.34	(1/)	4.36	6.22	19.47	2.52	0.91	0.10	1.30	0.04
Cotton textiles	0.46	3.41	41.95	22.45	2.60	2.51	2.69	14.56	0.93	1.12	0.03	1.81	0.08
Drugs and medicines	13.94	13.41	27.52	5.74	3.50	1.21	1.23	4.33	1.21	0.92	1.32	5.50	0.18
Electrical machinery and apparatus	1.58	9.13	23.41	14.95	11.86	2.30	2.30	9.28	0.84	2.18	4.85	3.06	0.08
Fertilizers	0.80	6.23	64.44	9.21	(1/)	2.58	2.52	4.14	1.29	0.67	0.13	3.68	0.80
Flour milling	3.03	6.22	70.10	3.10	1.49	0.95	0 62	7.42	0.69	0.49	0.11	3.30	0.07
Lumber and timber products	0.21	5.18	30.84	23.63	3.86	3.81	3.09	12.74	1.69	1.29	0.23	3.95	0.18
Matches	0.28	12.75	51.26	14.40	1.94	1.84	3 04	4.86	1.19	0.95	0.52	3.12	0.24
Mechanical Measuring Instruments	2.17	13.15	23.18	12.85	12.88	1.47	1.19	4.19	0.95	1.82	1.98	6.26	0.04
Motor vehicles	1.94	3.29	49.60	10.58	7.97	2.38	4.60	5.23	0.89	0.96	1.04	1.15	0.02
Office and store machines	2.63	26.72	9.20	13.69	8.96	4.30	3.77	4.98	1.56	1.62	1.37	5.58	0.49
Paper and pulp	0.79	4.49	39.64	14.18	4.43	4.25	4.22	8.88	1.40	0.92	0.29	3.75	0.18
Petroleum (crude) producing	0.08	0.32	42.08	7.71	2.31	8.43	2.70	10.46	4.48	0.78	—	5.55	0.04
Petroleum refining and marketing	1.25	12.51	42.24	3.71	2.69	6.48	2.92	16.37	2.50	1.17	0.38	2.28	0.14
Plastics	0.77	8.34	32.78	16.21	6.81	2.73	2.54	7.42	0.99	1.17	0.85	4.09	0.33
Rayon and allied products	0.87	2.07	24.45	18.80	7.91	7.27	4.91	5.40	1.28	1.28	0.70	2.71	0.13
Sewing machines	0.98	35.55	20.47	9.34	4.94	1.66	0.57	3.96	2.35	1.09	0.40	3.34	5.68
Shipbuilding	0.06	0.64	41.17	28.46	5.11	0.97	1.83	1.92	0.68	1.88	0.01	3.91	0.05
Steam engines and turbines	0.66	4.10	31.78	11.89	13.98	2.08	2.30	4.17	0.72	1.21	0.38	3.23	0.09
Steel castings	0.24	4.77	27.71	24.03	9.83	3.52	—	9.83	1.27	1.50	0.40	3.78	0.03
Tin cans and tinware	0.61	3.10	57.98	8.22	4.39	3.21	2.97	2.97	0.88	0.90	0.35	2.31	0.26
Woolens and worsteds	0.32	3.56	57.49	15.35	5.83	1.46	2.03	3.92	0.70	0.94	0.22	2.11	0.07

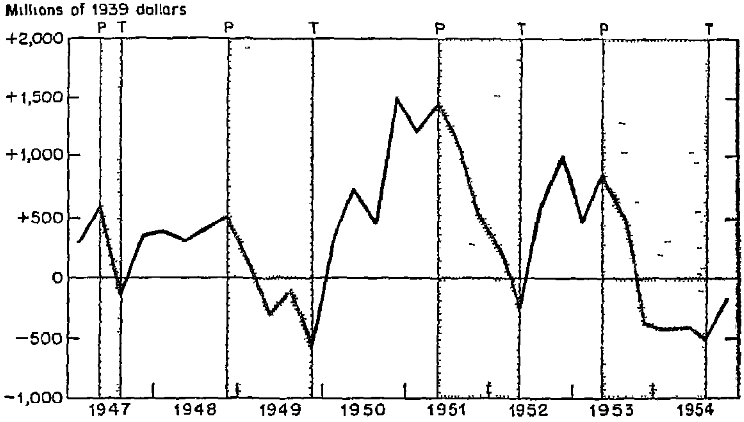
(1/) Combined with direct labor

position to mount a mass attack—a "crash program"—in the area of analysis and forecasting of the business trend.

MASTERING THE INVENTORY CYCLE

Few business economists, if any, subscribe to the thesis that we are now in another "new era," in which the business cycle has become a vestigial remnant of the past, soon to disappear altogether. There is, however, warrant for believing that the mechanism of the short-term inventory cycle, which has plagued us for the past decade, is now better understood than ever before. Further increasing our understanding of it will act to lessen its severity in the future as well as to make it more predictable.

Chart 5
Changes in Inventory Investment
and Changes in General Business Conditions



P and T represent peaks and troughs in general business and shaded areas represent periods of business setback and unshaded areas periods of business expansion.

Source: D N Weihermann, "Inventories in Economic Forecasting". Ph D thesis, p 139

The inventory cycle plays a fundamental role in business analysis, both per se and because of its tendency to trigger long-term cycles. The fuller understanding which we are now approaching is greatly to be desired. But progress in this area requires a still broader base of statistical knowledge. Above all, we need not only to expand and improve but, even more, to accelerate the timing of our inventory statistics themselves. In an age of diversification and broad substitutability of materials, inventories reported by establishment are becoming less and less useful. Inventory reporting by product and by material, in turn, becomes increasingly necessary. Widening our knowledge of inventory holdings by product and material would serve to bridge the vital gap between end-product demand and production levels—a gap which every analyst must now cross on a perilous chain of successive price deflations. Closing the gap would make a key contribution to our ability to trace the course of inventory cycles as they develop. It would also contribute substantially to our knowledge of inter-industry relations, in a functional and current way that input-output tables are not likely to duplicate for many years.

THE PROMISE OF EXPECTATIONS

Secondly, we need a greater variety and more intensive coverage in our *foreshadowing* statistics, the statistics which give an indication of future plans and expectations of businesses and consumers. While this is certainly not a complete explanation of the inventory cycle, discrepancies between expectations and market realities foster and amplify short-term fluctuations. Several series on businessmen's expectations of future volume are now available, but none of them frequently enough or in sufficient depth to provide the analyst with a reliable measure of this fundamental business influence. Similarly, surveys of consumer buying intentions are conducted so infrequently and reported on with such a lag that the events to which the intentions refer may have already occurred, or the intentions may have been fundamentally altered, by the time they have become a datum for the analyst. In connection with expectations, we require much faster reporting of corporate profits figures than are now available—if possible, in fact, we should develop monthly rates of corporate earnings. Profits are now reported long after the fact. As a result there is a tendency to view them as a consequence of business activity—a residuum—rather than as one of the fundamental stimuli. If we had such a monthly series we might discover that it would qualify as a leading indicator, and perhaps as a good measure of business expectations.

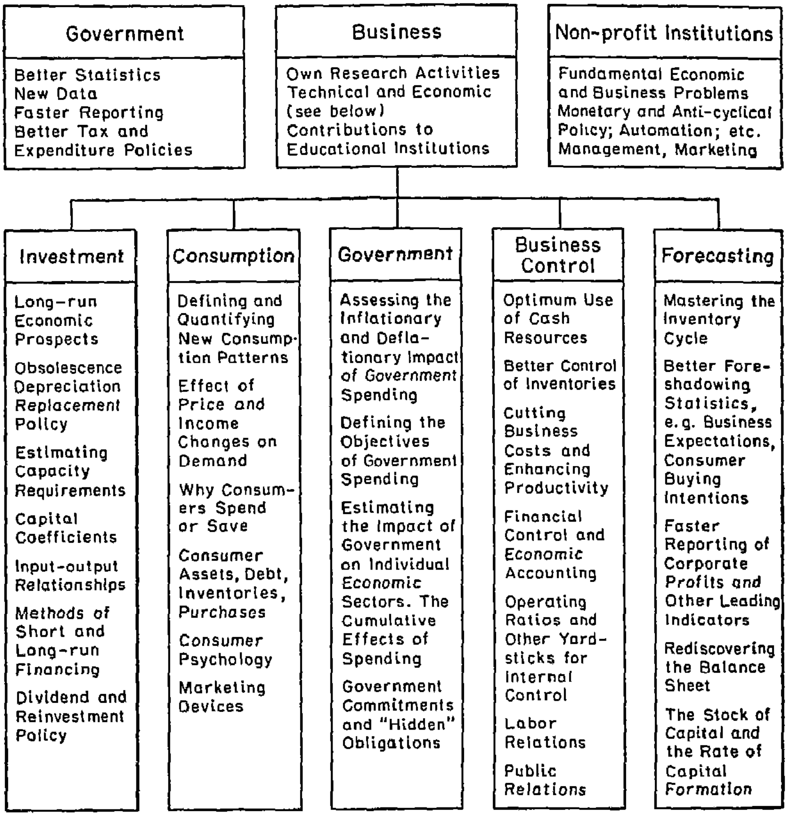
REDISCOVERING THE BALANCE SHEET

Finally, to complete our statistical base for short-term analysis and to provide a much broader base for longer-term cycle analysis we require a considerably greater volume of data on the balance-sheet position of the various sectors of the economy. We still lack authoritative data on the debt-saving position of consumers. With the single outstanding exception of automobiles, our knowledge of the state of consumer nonliquid assets is deplorably thin. As a consequence we have little knowledge of the backdrop of existing assets against which the current flow of new assets takes place. In the major areas of capital formation—capital goods and housing—our knowledge of the existing stock, which is a prerequisite to intelligent analysis of the current flow, is equally deficient.

Chart 6

New Horizons for Research

A Summary of Proposals by
Martin R. Gainsbrugh


Government
Better Statistics
New Data
Faster Reporting
Better Tax and Expenditure Policies
Business
Own Research Activities
Technical and Economic (see below)
Contributions to Educational Institutions
Non-profit Institutions
Fundamental Economic and Business Problems
Monetary and Anti-cyclical Policy; Automation; etc.
Management, Marketing
Investment
Long-run Economic Prospects
Obsolescence Depreciation Replacement Policy
Estimating Capacity Requirements
Capital Coefficients
Input-output Relationships
Methods of Short and Long-run Financing
Dividend and Reinvestment Policy
Consumption
Defining and Quantifying New Consumption Patterns
Effect of Price and Income Changes on Demand
Why Consumers Spend or Save
Consumer Assets, Debt, Inventories, Purchases
Consumer Psychology
Marketing Devices
Government
Assessing the Inflationary and Deflationary Impact of Government Spending
Defining the Objectives of Government Spending
Estimating the Impact of Government on Individual Economic Sectors. The Cumulative Effects of Spending
Government Commitments and "Hidden" Obligations
Business Control
Optimum Use of Cash Resources
Better Control of Inventories
Cutting Business Costs and Enhancing Productivity
Financial Control and Economic Accounting
Operating Ratios and Other Yardsticks for Internal Control
Labor Relations
Public Relations
Forecasting
Mastering the Inventory Cycle
Better Foreshadowing Statistics, e.g. Business Expectations, Consumer Buying Intentions
Faster Reporting of Corporate Profits and Other Leading Indicators
Rediscovering the Balance Sheet
The Stock of Capital and the Rate of Capital Formation

These balance-sheet data would certainly enrich our analysis of short-term trends. They would also make a fundamental contribution to work on longer-term cycles. It seems wishful thinking to argue that the forces which in the past have generated serious recessions are no longer present, simply because government now holds a broad and permanent mandate to interrupt the course of major recession. Business and government alike need and can use more and more detailed knowledge of the areas in which the forces of longer-term recession reside; namely, in the stock of capital, and the rate of capital formation.

This is indeed a formidable array of research needs, particularly in the form of more and better statistics. I hasten to add at its close that as a practicing member of the profession I am impressed and thrilled by the progress that has been made in business analysis in the past several years. A great deal of this progress comes from the increasing number of trained, qualified technicians in business, in government, in the universities, and in private research institutions who can now devote full time to current analysis. Their full-time occupation is the constant testing and application of theory to the practical world of business. The contribution of the universities is particularly noteworthy, as is the work of Julius Hirsch and his colleagues at The New School for Social Research. Here, as at so many other institutions of learning, current business analysis has come to occupy a major role in economic curricula. (Such courses are now also being given in three large metropolitan universities by members of The Conference Board Research Staff.)

The practicing analyst is constantly involved with applying theory to the living statistics of the business system. He is responsible for many of the recent advances in our understanding of business conditions. He is also in an ideal position to take note of new statistical needs as they arise. The more such analysts there are, and the better trained they are, the faster will our knowledge grow.

CONCLUSION

Business and economic research now accounts for only a small fraction of the nation's total research expenditures. The great bulk of research outlay is now directed toward the physical sciences. The cost of an accelerated business research program which I look for in the future will inevitably be borne largely by business itself; indirectly, in its contributions to educational and research institutions and in its tax payments; directly, in its own research payrolls.

This is certainly as it should be, since business has an overwhelming stake in the research effort. And I venture to guess that it will, in the not-so-distant future, get a large return in the form of increased stability of total business through increased capacity of the individual firm to minimize its own fluctuations. This would act to make government intervention in the business system less necessary and less frequent. At the same time, research can assure that government intervention, should it become necessary, will be more intelligent, more effective, and more economical.

But even this may be only a small part of the total reward for an expanded research effort. In the years since World War II, American business activity has become a national political issue and a battleground for an international war of ideas. Today the whole free world looks to America not merely for material aid but for continuing proof that the system of private enterprise, with its obvious spiritual advantages, is also stable, equitable, and dynamic. The more effectively American business can plan and operate, the more effectively it avoids wide swings in activity and employment, the safer will it be from cynical political attack at home. And the stronger will be our ideological position in the world struggle for freedom.

APPENDIX

The New School for Social Research

Readers may be interested in the purpose, organization, and activities of The New School for Social Research, which sponsored this book. The following brief extracts from the catalogues, bulletins, and public announcements of the New School are intended to meet such interest.

FROM "STATEMENT OF PURPOSE"

The New School aims at imparting knowledge which is applicable to live situations. Teaching at the New School is intended to be exploratory, not authoritarian, its methods to be inquiry, not judgment. Its purpose is to enable the individual to live more fully in a bewildering world, to understand better the causes of his anxieties, to acquire tools for solving problems, and in the process to enjoy the excitement of intellectual growth.

ORGANIZATION

The New School for Social Research has a School of Politics, a School of Philosophy and Liberal Arts, a Graduate Faculty of Political and Social Science, a Business Administration Center, Human Relations Workshops, a Study Center for Community Participation, and a Research Division. It publishes a quarterly, *Social Research*. The chairman of the

Board of Trustees is William H. Davis, noted lawyer and public administrator; the vice-chairman is Marshall Field. The chief administrative officers of the New School are Dr. Hans Simons, President; Alvin Johnson, President Emeritus; Clara W. Mayer, Vice President; Saul K. Padover, Dean of the School of Politics; Issai Hosiosky, Treasurer.

CURRICULUM

The New School offers more than 300 courses each year in politics, economics, sociology, history, psychology, philosophy, literature, music, and art. Through counseling, students are guided to an integrated program at the proper individual level. The School is authorized by the State Board of Regents to grant degrees of bachelor and master of arts, master and doctor of social science, and doctor of philosophy.

THE FACULTY

The faculty combines both distinguished educators and leading practitioners in business, the professions, and the arts. Among the founders of the New School were Charles A. Beard, James Harvey Robinson, Thorstein Veblen, and John Dewey. Among noted past and present lecturers, in addition to the founders, are J. M. Keynes, Wesley Mitchell, Horace M. Kallen, Margaret Mead, Thomas Mann, Frank Lloyd Wright, Karen Horney, Jacques Maritain, Ogden Mills, Kuniyoshi, Alfred Adler, Roscoe Pound, T. S. Eliot, and Julian Huxley.

ACADEMIC FREEDOM

Communists and Fascists are barred from the New School faculty under a twenty-year-old bylaw which insists that teachers must be free to follow the truth wherever it may lead and shall not be members of "any political party or group which asserts the right to dictate in matters of science or scientific opinion."

STUDENTS

More than half of the 5000 students enrolled are college graduates. About 20 per cent seek academic credit and work for a B. A. or advanced Social Science degree. The rest are free to enroll for one course or a whole program of courses as their intellectual needs and interests may indicate. The largest occupational group among the students is professional—teachers, lawyers, doctors, clergymen, engineers, and the like. Second come businessmen and executives. Next, secretarial and clerical personnel. Students have included Judge Learned Hand, Walter Lippmann, Bernard Gimbel, Governor Dewey, and William McChesney Martin, chairman of the Board of the Federal Reserve System.

BUSINESS ADMINISTRATION CENTER

The Business Administration Center is a division in the School of Politics of the New School. It was established in 1954 to meet the practical and continuing needs of businessmen. The purpose of the Center is to make available to those engaged in commerce, finance, industry, and distribution, greatly needed information on the latest trends and developments, as well as tested techniques for increasing efficiency.

Over twenty courses are offered each year in the Business Administration Center, dealing with current economic events, investment problems at home and abroad, export-import practices and financing, methods of business organization and management, human relations in business and industry, and problems of effective communication in business. A group of specialists, both business leaders and scholars, conduct the courses in an informal atmosphere of give and take. The director of the Business Administration Center is Julius Hirsch; associate director, Albert E. Meyer; Daniel N. Weihermann is assistant to the Director.

GRADUATE FACULTY OF POLITICAL AND SOCIAL SCIENCES

The Graduate Faculty of the New School was launched in 1933 by the New School for Social Research as a European University-in-Exile. It quickly made a place for itself among American educational institutions. It was composed originally of scholars who in their own persons had experienced the indignities of tyranny at the hands of totalitarian governments. This made the group keenly sensitive to the high privilege of teaching in the atmosphere of free America and of working to uphold its traditions of political and academic liberty. At the same time the scholars brought with them the ideals and principles which had made European universities pre-eminent in the social sciences, and were thus able to contribute to that cross-fertilization of cultures so indispensable to the growth of scholarship.

As the years have gone by, many brilliant American scholars have been associated with the Faculty, either as new members or as visiting professors, and there has been a constant fruitful exchange between the group and other graduate schools throughout the country. It has also materially enriched the teaching of the social sciences in the adult education division of the New School.

While in scope and quality of work the Graduate Faculty follows the standards set by America's leading graduate schools, it holds that professional training is truly completed only as the student becomes clearly aware of the relation of his particular area of specialization to the entire field of the social sciences. The student therefore prepares himself not only for a professional career in research, teaching, or administration, but seeks also to broaden the basis of his entire intellectual development. It is believed that this integrated approach to the social sciences encourages the advanced student to achieve the breadth and depth of outlook without which his scholarly responsibilities in the modern world cannot be fully discharged.

The fields covered in the Faculty's teaching include philosophy, psychology, sociology, political philosophy, political science, jurisprudence, international law, economics, statistics, and labor. Under an unconditional charter granted by the Board of Regents of the State of New York, successful study with the Faculty leads to the degrees of Master of Arts and Doctor of Philosophy, or to the degrees of Master and Doctor of Social Science. The Faculty, within the framework of its regulations, grants credit toward the degree of Doctor of Philosophy for graduate work completed elsewhere; its own credits are widely accepted by other institutions. The Dean of the Graduate Faculty is Dr. Hans Staudinger.

LIBERAL ARTS DEGREE (B. A.)

The New School is empowered to grant the Bachelor of Arts degree under an amendment to its absolute charter, granted by the Board of Regents on May 19, 1944. For those who desire this degree, the New School provides a program meant primarily for mature students who have the equivalent of the first two years of college. This program is not separated from but integrated into the general curriculum. Application for admission must be made and required credentials submitted to the office of the Student Adviser at least three weeks before the opening of the term. Each study program must be worked out individually with the Dean, the Student Adviser, or a faculty member in the major field.

B. A. essay. Required of every B. A. candidate. A research project carried out under supervision of two faculty members. Both content and method are stressed.

ADULT EDUCATION

The New School regards adult education not as a by-product of elementary or higher education, nor as an extension of college courses offered at other times or places to an older group of students. There is obvious need for these, too. However, true adult education does not substitute for a high school diploma or a college degree, but meets the continuing intellectual needs and interests of free citizens in a democracy which grows in complexity and responsibility. Adult education formalizes without regimenting the unending experiment in education which is democracy in the American tradition.

It is in accordance with the above principles that the New School plans its curriculum and carries on its instruction. The three hundred or more courses offered in the School of Politics, the School of Philosophy and Liberal Arts, the Graduate School, the Business Administration Center, and in other divisions of the New School are imbued with the spirit of free enquiry reflected in the above principles.

Thus, with the adult in mind, the New School program, while aware of the need for specialization, aims at integration within the individual.

It wants to make people not experts, but responsive to expertness, capable of asking intelligent questions and of finding out where to look for answers. It expects to enable its students to guide public opinion wherever it is formed, in small groups or large organizations, and to argue and act for what is best in American life. It hopes to develop neighborhood leaders who do not lose their capacity to cooperate nor their willingness to accept community decisions.

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